



# SmartState™

SC Centers of Economic Excellence

November 30, 2015

The Honorable Nikki R. Haley, Governor of the State of S.C.

The Honorable Hugh K. Leatherman, Sr., President *Pro Tempore*, and Members, S.C. Senate

The Honorable James H. "Jay" Lucas, Speaker, and Members, S.C. House of Representatives

Dear Governor Haley and Members of the S.C. General Assembly:

On behalf of the S.C. Centers of Economic Excellence Review Board, I am pleased to provide you with the *SmartState® Program 2014-2015 Annual Report* and the *2014-2015 SmartState Program Audit*. We are proud to share with you the program's accomplishments and to report again this year an unqualified audit with no material findings. These reports highlight the tremendous success of SmartState.

To date, the SmartState Review Board has approved 51 research centers in areas such as biomedicine, pharmaceutical research, automotive engineering and transportation, energy, nanotechnology, information science, and advanced materials. Across these centers, 85 SmartState endowed chair positions have been approved, and 54 appointments have been made and announced. As envisioned by the General Assembly in 2002, SmartState is delivering significant returns on the state's investment on many fronts such as sponsored research, corporate partnerships, company relocations and startups, increased jobs in our state, and opportunities for young people at our universities, in industry and as entrepreneurs. According to a recent study by the University of S.C.'s Moore School of Business, SmartState is responsible for helping to create and support approximately 12,136 jobs in our state, which are associated with nearly \$2.4 billion in total economic activity and \$639 million in labor income for South Carolinians that would not exist otherwise. Of the total 12,136 jobs, 4,936 (41%) are high-paying knowledge economy jobs created directly through the program with an average salary of \$69,213, which is roughly 70 percent higher than the average annual salary among all jobs in South Carolina.

The SmartState annual program report and audit are being transmitted in accordance with statute and made available to members of the S.C. General Assembly in electronic format through the S.C. Legislative Services Agency. You will also find a copy of the annual report and other program information available at [www.smartstatesc.org](http://www.smartstatesc.org). Should you desire a hardcopy annual report, please contact Dr. Argenti Anderson at the S.C. Commission on Higher Education at [aanderson@che.sc.gov](mailto:aanderson@che.sc.gov) or 803.737.2276.

The SmartState Review Board trusts the enclosed reports will be helpful to you in better understanding this important program and looks forward to working with you in the coming year and as the future of SmartState is considered. As always, we extend our appreciation and thanks to each of you for the work you accomplish on behalf of higher education and academic research and for the betterment of South Carolina and its citizens.

Sincerely,

Regan Voit  
Chair, SmartState Review Board

cc: The Honorable Richard Eckstrom, S.C. Comptroller General  
The Honorable Curtis Loftis, State Treasurer of S.C.  
Ms. Marcia Adams, Executive Director, Department of Administration  
Members, SmartState Review Board  
Mr. Gary Glenn, Interim Executive Director, S. C. Commission on Higher Education



2014-2015

# SmartState®

SC CENTERS OF ECONOMIC EXCELLENCE

**ANNUAL REPORT**



**SOUTH CAROLINA'S**  
Knowledge Economy

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(Inside back cover)

## ON THE COVER:

Dr. John Regalbuto,  
SmartState® Endowed Chair  
in Renewable Fuels,  
University of South Carolina



# MISSION

*The South Carolina SmartState® Program serves the public interest by creating incentives for the state's research universities, in cooperation with other institutions of higher education in the state, to raise capital from non-state sources to fund endowments for specialized research professorships. These professorships in turn serve as the nucleus for unique, university-based research centers which cultivate critical, public-private industrial partnerships, expand the state's knowledge base, create well-paying jobs, enhance economic opportunities, and improve the quality of life for the people of South Carolina.*





# AN INTRODUCTION FROM REGAN VOIT, CHAIR

*In the early 2000s, the Palmetto State was reeling from the loss of much of its textile industry and looking for new opportunities.*

Harvard University Professor Michael Porter was hired to assess South Carolina's competitiveness. Porter's findings pointed to a new model of economic development that included collaborative processes involving companies, government, teaching and research universities, technical education colleges, and new institutions. The ultimate goal was to create a "knowledge economy" in South Carolina, one that included more high-tech companies and higher salaries.

It was during this time that the South Carolina General Assembly created the SmartState® Program, a groundbreaking program designed to attract endowed chairs in areas of global and national importance to South Carolina's research universities. These SmartState® Endowed Chairs would serve as catalysts of innovation and technology in collaborations between research universities and external partners in business, industry, health care, and private foundations.

In the 13 years since the SmartState® Program was established, South Carolina has succeeded in creating a knowledge economy. Thanks to major economic development victories, we are now home to some of the biggest names in the automotive, aviation and energy industries. Our state is leading the nation in health informatics-driven research thanks to a unique statewide collaborative of universities and health systems that are recognized as being among the nation's elite in solving issues of public health and healthcare policy. Citizens in our state have more opportunities than ever to find well-paying careers in high-tech fields.

**The SmartState® Program was, and remains, a very smart idea for South Carolina!**

In this SmartState® Program Annual Report, we profile the people, universities, and collaboratives that have played a critical role in making the vision of a knowledge economy a reality. We are honored to feature South Carolina's Secretary of Commerce, Robert M. "Bobby" Hitt, who had the unique distinction of serving on the Review Board of the SmartState® Program. Secretary Hitt played a pivotal role in one of the state's most historical economic development wins, the recruitment of BMW, and then assisting with BMW's multi-million dollar investment in two SmartState® Endowed Chairs. We also profile Helga Rippen, a national leader in health informatics, who now leads Health Sciences South Carolina, a dynamic statewide research collaborative that was born of the SmartState® Program.

As in past issues, we introduce you to six SmartState® Endowed Chairs, two each of Clemson University, the Medical University of South Carolina and the University of South Carolina. This year three of those profiled are women whose centers are addressing new and sustainable American rubber sources, which could benefit our state's burgeoning tire industry; the designing of safer, more ergonomic operating rooms; and the identification of more precise means of diagnosing breast cancer. The other chairs are leading the charge on sustainable biofuels, healthcare econometrics, and heart disease mitigation..

In dosing, I would like to thank the many political and business leaders whose shared vision created the SmartState® Program, along with the university leaders, endowed chairs, staff, and students who live the dream daily. Because of you, South Carolina is a better place for all of us.



Regan Voit, Chair  
SmartState® Review Board

*The SmartState® Program does not receive taxpayer dollars to fund economic development-related initiatives to benefit the state; it is funded through revenue generated by the South Carolina Education Lottery, which is then matched dollar-for-dollar by non-state businesses and foundations.*

## REVIEW BOARD

The SmartState® Review Board consists of eleven members who serve three-year terms. Three are appointed by the Governor, three by the President Pro Tempore of the State Senate, three by the Speaker of its House of Representatives, one by the Senate Finance

Committee, and one by the Chairman of the House Ways and Means Committee. The Review Board oversees operations of the SmartState® Program. The presidents of South Carolina's three research universities serve as ex-officio, non-voting board members.



**REGAN VOIT, CHAIR**

Appointed by  
Chairman of the  
Senate Finance  
Committee



**MELVIN WILLIAMS,  
VICE CHAIR**

Appointed by  
President Pro Tempore  
of the Senate



**CHARLES W. "CHUCK"  
GARNETT**

Appointed by the  
Governor



**KAROLY "CHARLES"  
KEREKES**

Appointed by the  
Governor



**LISA MAIN**

Appointed by Speaker  
of the House



**ROBERT W. PEARCE,  
JR.**

Appointed by Speaker  
of the House



**JASON P. PREMO**

Appointed by the  
Governor



**PATRICK W. TURNER**

Appointed by  
President Pro Tempore  
of the Senate



**ROBERTA BANKHEAD  
WOOD**

Appointed by the  
Chairman of House  
Ways and Means  
Committee



# SOUTH CAROLINA'S SENIOR RESEARCH UNIVERSITIES

## *The Knowledge Economy's Catalysts + Collaborators*

The SmartState® Program funds Centers of Economic Excellence at South Carolina's three senior research universities: Clemson University, the Medical University of South Carolina (MUSC), and the University of South Carolina (USC). Other state universities such as South Carolina State University and the College of Charleston are included as collaborative research partners.

In 2002, members of the South Carolina General Assembly recognized the critical role research universities play in advancing innovation, creating economic and educational opportunities, and improving overall quality of life for the state's citizens when it acted with foresight and an eye to the future, passing the enabling legislation of the SmartState® Program. Today, other states look to South Carolina's SmartState® Program as the model of university-based public-private partnerships that foster innovation, launch companies, and create jobs.

Ranked #21 among national public universities, Clemson University is a major land grant, science- and engineering-oriented research university that is an inclusive, student-centered community characterized by high academic standards, a culture of collaboration, school spirit, and a competitive drive to excel. With agricultural and forestry research centers and innovation campuses located from Greenville to Charleston, and a presence in every county, Clemson's campus is truly the entire state of South Carolina.

Clemson is finalizing a new strategic plan, *ClemsonForward*, which emphasizes high-impact engagement opportunities to prepare students for a

knowledge-based global economy, and growing research and doctoral education to help find solutions to real-world problems. The plan also supports economic development and creates jobs, enhances quality of life and builds the university's national academic reputation. The plan identifies six innovation clusters to support development of multi-disciplinary teams and large research projects: Health Innovation, Sustainable Environment, Human Resilience, Big Data Science, Complex Engineered Systems, and Advanced Materials.

MUSC has served the citizens of South Carolina since 1824. MUSC has expanded from a small private college for the training of physicians to a state university with a medical center and six colleges for the education of a broad range of health professionals, biomedical scientists, and other health-related personnel. MUSC has colleges in medicine, nursing, dental medicine, pharmacy, health professions, and graduate studies. MUSC Health is among the state's largest and most innovative health systems.

Established in 1805, USC is home to more than 200 years of history and tradition, with more than 46,000 students at its eight campuses across the state. The main campus in Columbia offers 324 degree programs through its 14 colleges and schools, which include medical schools in Columbia and Greenville, and a law school in Columbia. The Sonoco International Business Department within the Darla Moore School of Business offers an undergraduate international business major that is consistently ranked as #1 by U.S. News & World Report. USC is one of only 63 public universities listed by the Carnegie Foundation in the highest tier of research institutions in the United States.





*“The SmartState® Program has had a tremendous impact on Clemson University by helping us recruit and support outstanding scholars and researchers, whose work spurs economic growth, enhances the quality of life for the people of South Carolina and elevates the quality and value of a Clemson education. Its success is a testament to the value of collaboration among states, universities and the private sector.”*

— **JAMES P. CLEMENTS, PH.D.**  
President  
Clemson University



*“The SmartState® Program in South Carolina is one of the most valuable assets available to research universities in South Carolina. In 2002, the South Carolina General Assembly had the foresight to create the South Carolina Research Centers of Economic Excellence, or SmartState. This program has enabled South Carolina’s research universities to recruit and retain world-class scientists and, in turn, attract and leverage new federal and private funding for research that has created high-wage, innovative jobs. This reality continues to have a positive ripple effect for the state and beyond. It is also through SmartState® that we will continue high-level collaborative research with Clemson University and the University of South Carolina that allows us to retain the best students in our state. We must encourage policy-makers to continue this important investment in South Carolina that allows us to successfully participate in a highly competitive knowledge economy.”*

— **DAVID J. COLE, M.D.**  
President  
Medical University  
of South Carolina



*“When South Carolina’s SmartState® Program was created in 2002, we envisioned highly productive partnerships between the state’s research universities and businesses that would spark a competitive edge as well as new jobs and new federal and private funding. Thirteen years later, the vision is self-fulfilling and successful. As importantly, the SmartState® Program has launched a new knowledge-based economy that supports job-creating research in high-growth, high-wage industries while connecting some of our brightest students with world-class scientists and engineers. As our students participate in these SmartState® Programs, they soon become graduates who are aligned with industry and highly sought after employees. It’s a win-win for South Carolina as the program entices top scientists and researchers while offering our best students every reason to excel right here at home.”*

— **HARRIS PASTIDES, PH.D.**  
President  
University of South Carolina





Robert "Bobby" M. Hitt, III  
SC SECRETARY OF COMMERCE

“ **UNIVERSITIES** must  
continue to work toward  
**GREATER INTEGRATION**  
with business. ”

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# HIGH ON THE KNOWLEDGE ECONOMY

*Robert “Bobby” M. Hitt III has a knack for finding sweet spots.*

For 17 years, Bobby Hitt worked at The State and Columbia Record newspapers, rising to managing editor. Later, while with the Nelson Mullins Riley & Scarborough Law Firm, he played a key role in recruiting BMW to Spartanburg, South Carolina, the state’s largest economic development success story.

Hitt went on to join BMW and was instrumental in engaging the German automaker in the SmartState® Program. BMW invested \$10 million in two SmartState® Endowed Chairs at Clemson University’s International Center for Automotive Research (CU-ICAR), creating the most dynamic business-university partnership in the state’s history. Hitt is also among an elite corps of state leaders who have served on the SmartState® Review Board.

Today, as Governor Nikki Haley’s Secretary of Commerce, Hitt oversees the economic development of a state on fire. South Carolina is now a world leader in automotive design, engineering, and manufacturing. Under Hitt’s watch and with his Team South Carolina approach, Mercedes-Benz Vans and Volvo Cars have also either located or announced plants in South Carolina. Thanks to Bridgestone, Continental, Michelin, Giti Tire Group and a host of other companies, the Palmetto State is now the nation’s tire capital. And, with the successful recruitment of Boeing in 2009, the state scored a new growth industry in aviation and aerospace. It’s quite a turnaround for a state that lost nearly its entire manufacturing base — textiles — in the late 1990’s.

Hitt attributes South Carolina’s successes to state leaders’ vision of creating a knowledge economy, one advanced by the creation of the SmartState® Program in 2002. At that time, and for the first time, the state’s research universities were incentivized to establish public-private partnerships with businesses and recruit internationally-renowned researchers to spur economic development. Today, the program has research and education clusters that mimic the state’s

business clusters: automotive, energy, health care, information technology, and tourism.

Aviation and aerospace are new focal points for the Palmetto State. Three South Carolina businesswomen — Darla Moore, Anita Zucker, and Marva Smalls — have invested \$11 million, collectively, to establish the University of South Carolina’s McNAIR Center for Aerospace Innovation & Research. Named for South Carolina-born astronaut Ronald E. McNair, the center will create opportunities for companies like Boeing and the state’s future aerospace workforce.

“The recruitment of **BMW** was **TRANSFORMATIONAL** for South Carolina. Our attitude changed. Finally, we were the ones **WINNING.**”

Hitt believes South Carolina’s sweet spot is “extreme” manufacturing but says the work is far from over. Universities must continue to advance the state’s knowledge economy by providing businesses critical services like research, market analysis, and workforce educational programs. The rapid pace of change will require institutions of higher learning to work toward greater integration with business to ensure that degrees, programs, learning environments, and methodologies between the two are in sync.

One solution may be hybrid academic and workplace apprenticeships. Said Hitt, “Developing an educated workforce with strong earning potential is one of our top priorities. We need to bridge the gap between the highly educated and the newly educated to more rapidly move people into well-paying jobs.”

“Three businesswomen **INVESTED \$11 MILLION** for a new center in **AEROSPACE.**”





Helga Rippen, MD, PhD,  
MPH, FACPM

**PRESIDENT + CEO**

**HEALTH SCIENCES SOUTH CAROLINA**

“ Thanks to the **VISION**  
of HSSC’s founders,  
South Carolina now has  
a **NATIONALLY RECOGNIZED**,  
one-of-a-kind informatics  
infrastructure to support  
health and health research. ”

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# HEALTH COLLABORATIVE PROPELS SOUTH CAROLINA TO NATIONAL STAGE

## *Information is power.*

For Health Sciences South Carolina (HSSC), that power lies in the form of a statewide collaborative and a health informatics infrastructure linking the state's largest research universities and health systems.

The story begins in 2004, just two years after the creation of the SmartState® Program, when university and health system leaders founded HSSC with the vision of improving the health and economic wellbeing of South Carolina through collaborative health sciences research and creation of a learning healthcare system. Each of the six partners — Clemson University, Medical University of South Carolina (MUSC), University of South Carolina (USC), Greenville Health System, Palmetto Health, and Spartanburg Regional Healthcare System — pledged to invest. The money was eligible for a one-to-one state match through the SmartState® Program.

True to its word, HSSC helped fund twelve SmartState® Centers, in areas ranging from brain imaging to SeniorSMART®. HSSC has since expanded its geographic reach and now includes AnMed Health, McLeod Health and Self Regional.

A goal of the SmartState® Program is to attract outside investment. To this end, HSSC forged a synergistic relationship with The Duke Endowment, a Charlotte-based philanthropy organization. Over the last decade, The Duke Endowment has awarded grants totaling \$47.55 million to HSSC. Some of these funds were subsequently awarded by HSSC to various SmartState® Centers.

With the Endowment's investment, HSSC and its member organizations have created an unprecedented statewide informatics infrastructure, linking the state's health systems and universities while giving researchers access to information critical to research. This infrastructure is now being used to help reduce hospital readmissions, a project with the South Carolina

Hospital Association; improve surgical safety, a project supported by the BlueCross Blue Shield of South Carolina Foundation; and numerous other studies aimed at improving health in South Carolina.

These efforts have propelled South Carolina to the national stage. In 2014, the Association of American Medical Colleges (AAMC) presented HSSC with its prestigious AAMC Learning Health System Champion Research Award, one of just eight awards given. In January 2015, HSSC recruited Helga Rippen, a national expert in health information technology (IT), to serve as its president and CEO. Rippen, who played a key role in creating the nation's health IT infrastructure and public policy, was recently named a member of the U.S. Department of Health and Human Services' National Committee on Vital and Health Statistics.

“We are grateful for **THE DUKE ENDOWMENT** whose support has enabled us **TO ADVANCE HEALTH** and healthcare systems in the **CAROLINAS**.”

Under Rippen's leadership, HSSC secured its third grant from The Duke Endowment in May, leading to the formation of the Carolinas Collaborative. HSSC member organizations are now working with Duke University, the University of North Carolina and Wake Forest Baptist Medical Center to solve the Carolinas' largest health challenges. In August, HSSC, its North Carolina colleagues and Vanderbilt University, were awarded a national PCORI research grant, another major coup expanding South Carolina researchers' national reach.

Information is power, and thanks to HSSC, information is making good health possible for all South Carolinians.

“HSSC supports **TWELVE** SmartState Centers at Clemson, MUSC and USC.”





John Regalbuto

SMARTSTATE ENDOWED CHAIR

IN RENEWABLE FUELS

SMARTSTATE CENTER FOR CATALYSIS

FOR RENEWABLE FUELS



UNIVERSITY OF  
**SOUTH CAROLINA**

“Regalbuto and his  
Collaborators have more  
than **\$5 MILLION**  
in National Science  
Foundation funding to  
advance sustainable  
**BIOFUELS.**”

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# IN PURSUIT OF A SUSTAINABLE FUTURE

*In early October, South Carolina was ravaged by a “once in a 1,000 years” storm.*

To SmartState® Endowed Chair John Regalbuto, it was a reminder of severe weather attributable to global warming caused by ever-higher levels of atmospheric carbon dioxide from burning fossil fuels. He believes — and his research is focused on — creating fuel from sustainable sources that won't release new CO2 into the atmosphere and will therefore ease global warming.

Regalbuto is a world-renowned expert in catalysis, a hidden, but high impact science at the heart of energy, chemical and environmental industries. He was recruited to the University of South Carolina (USC) to lead the SmartState® Center for Catalysis for Renewable Fuels (CReF).

Regalbuto's goal is to develop the catalysts that convert non-food sources of biomass such as wood chips from forest waste; corn stover, the non-food portion of corn; and switch grass into fuels and chemicals. There are three main pathways for non-food biomass conversion: gasification followed by Fischer-Tropsch synthesis, pyrolysis followed by bio-crude upgrading, and liquid phase breakdown of plant sugars followed by liquid phase processing.

In 2015, the National Science Foundation awarded Regalbuto and his colleagues more than \$5 million to advance research in sustainable fuels. The grants include \$4 million for research infrastructure, an award to USC and the University of Kansas; a \$560,000 grant for an industrial consortium on catalyst synthesis; and a \$450,000 grant to Regalbuto and John Monnier, PhD, also of USC, for Bimetallic Catalyst Preparation.

Regalbuto's research is motivated by a win-win-win

domino effect. Recycling agriculture and forest waste and utilizing marginal farmland for energy crops would achieve three things: reduce U.S. dependence on imported petroleum, substantially eliminate new CO2 emissions and help address global warming, and create jobs and spur the economy of rural America.

On the challenges of development and adoption of sustainable fuels:

“The **PIONEERS** are the ones with arrows **IN THEIR BACKS.**”

Regalbuto believes the current windfall of cheap energy in the form of shale oil and gas from fracking has distracted policymakers and businesses from the critical need to reduce greenhouse gas emissions. However, he hopes a little “divine intervention” from two “Popes” will reignite South Carolina and the world's alternative energy efforts. Regalbuto has met with S.C. Speaker Pro Tempore Tommy Pope to brief him on CReF's efforts and the national action plan for biomass research and development. When the Center for Catalysis and Renewable Fuels formally opened in the Horizon I Research Building in July, Regalbuto shared Pope Frances' recent call: We need long-sighted, strong backed politicians to pick up the cry of sustainability.

Thanks to the SmartState® Program, South Carolina is playing a leadership role in this critical path to sustainable energy independence.

“Instead of paying farmers **NOT TO GROW** crops, let's pay them to raise switch grass that can be used for biofuels. Even marginal farmland can be **PRODUCTIVE.**”





Anjali Joseph, PhD, EDAC  
SPARTANBURG REGIONAL HEALTHCARE  
SYSTEM, SMARTSTATE ENDOWED CHAIR  
IN ARCHITECTURE + HEALTH DESIGN  
  
SMARTSTATE CENTER FOR HEALTH  
FACILITIES DESIGN AND TESTING

**CLEMSON**  
UNIVERSITY

**“DR. ANJALI JOSEPH**

and colleagues at Clemson  
and MUSC recently received  
a \$4 million grant to create  
a **LEARNING LAB** to  
advance surgical safety. **”**

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# MULTIDISCIPLINARY TEAMS + SMART DESIGN = SAFER SURGERY

*For nearly a decade, Anjali Joseph, PhD, EDAC, led research at the Center for Health Design, a California-based non-profit research, education and advocacy organization, focusing on architecture's role in advancing health and safety.*

When Clemson architecture professor David Allison approached her about applying for an endowed chair with the SmartState® Center for Health Facilities Design and Testing, Joseph was intrigued. She started her new position in January 2015.

The SmartState® Endowed Chair in Architecture + Health Design is a great fit for Joseph, who has dedicated her career to aligning the relationship between a building's function and the human experience. The vision of her SmartState® Center is to improve the quality of healthcare environments through rapid prototyping and research techniques that allow innovative design ideas to be tested and moved to real-world application through an evidence-based design process. The recent award of a major multidisciplinary project between Clemson, the Medical University of South Carolina (MUSC) and Health Sciences South Carolina (HSSC) will help move this vision to the next level.

In September, Joseph and her team were awarded a grant to create a learning lab at MUSC aimed at designing safer, more ergonomic hospital operating rooms. The initial grant is for \$1 million, with an additional \$3 million over the following three years. The grant is through the Agency for Healthcare Research and Quality, an entity dedicated to improving the nation's health care system.

The need for the study is significant. Operating rooms have changed little over the last 50 years despite rapid advances in surgical technology and teams. Hospital operating rooms are often cluttered and crowded, which can make them unsafe for patients and providers. While poor surgical outcomes can rarely be blamed on a single

cause, poorly designed operating rooms are a contributor to surgical errors and hospital-acquired infections.

Joseph's team will include architects, design researchers, human factors engineers, operations management researchers, anesthesiologists, surgeons, and nurses. The team will interact with graduate students in Clemson University's Architecture + Health Program who will build upon research findings to develop innovative operating room design solutions.

“MY PASSION is improving the healthcare experience through **BETTER DESIGN** of healthcare facilities.”

“This project is unique because it takes an integrated systems approach to improving patient safety in operating rooms,” Joseph explained. “We are examining the impact of the physical environment of operating rooms in conjunction with other system components such as tasks and workflows, equipment design, and individual factors. We will then design, develop, and test various design and systems solutions and will implement these new ideas in surgical environments at MUSC.”

Ultimately, these solutions will be applied to MUSC's new Ambulatory Surgery Center in Charleston. For Joseph and her team, this is just the beginning. Their goal is to continue studying and solving the diverse requirements of complex healthcare settings.

“Healthcare **ARCHITECTURE** and design is very dynamic, driven by America's **RAPIDLY CHANGING** healthcare system.”



# SMARTSTATE® PROGRAM RETURN ON INVESTMENT



*The primary mission of the SmartState® Program is to generate high-skilled, high-wage jobs in South Carolina as part of the knowledge economy.*

SmartState's established research centers help to expand the state's knowledge base by creating public-private partnerships, supporting start-up firms, and helping to retain highly skilled workers. Each of these efforts results in the creation of jobs that are among the highest paid in South Carolina.

Following the Great Recession of 2008, local regions with the highest rates of economic growth have typically had larger shares of their workforce employed in the knowledge economy. The skills associated with these jobs often include more advanced training in the fields of mathematics and science, complex problem solving, and creative and technological innovation. The commercialization of these ideas leads to economic growth and significant knowledge spillover effects.

As of 2015, the SmartState® Program is responsible for helping to create and support approximately 12,136 jobs in South Carolina, which are associated with nearly \$2.4 billion in economic activity and \$639 million in labor income for South Carolinians that would not exist otherwise. Approximately 4,936 (41%) of these positions are knowledge economy jobs created directly through the SmartState® Program, with the remaining 7,200 (59%) arising from additional spending activity generated through the economic multiplier effect.

The specific employment multiplier associated with these estimates is 2.5 — for every 10 knowledge

economy jobs directly created through the SmartState® Program, an additional 15 jobs are created elsewhere in South Carolina. This multiplier effect is larger than the state average. Each new job created through the SmartState® Program increases total South Carolina employment by more than it would if that job had been created in another industry of comparable size.

The average annual salary associated with a SmartState® job in the knowledge economy is \$69,213, roughly 70 percent higher than the average annual salary among all jobs in South Carolina. When examining the salaries of all jobs associated with the SmartState® Program, including those created through the economic multiplier effect, the average annual salary is estimated to be \$53,468. This dollar amount is approximately 31% higher than the average annual salary among all South Carolina jobs.

Two key drivers for economic growth and development in the 21st century are innovation and technological development. The SmartState® Program creates and supports program centers designed specifically to encourage both of these activities through investments in research and development, startup companies, company recruitment, and retaining talented alumni. Ultimately, it is an ongoing expansion of the knowledge economy that will create additional high-wage, high-skilled jobs for South Carolinians. The SmartState® Program has clearly become a state leader in these efforts across the state.

*“The SmartState Program is an essential component of South Carolina’s knowledge economy, facilitating the ongoing development of high-wage jobs. Specifically, the SmartState Program has generated over 12,000 jobs since 2002 that pay annual salaries that are significantly higher than the state average.”*

— **DR. JOSEPH VON NESSEN, RESEARCH ECONOMIST**

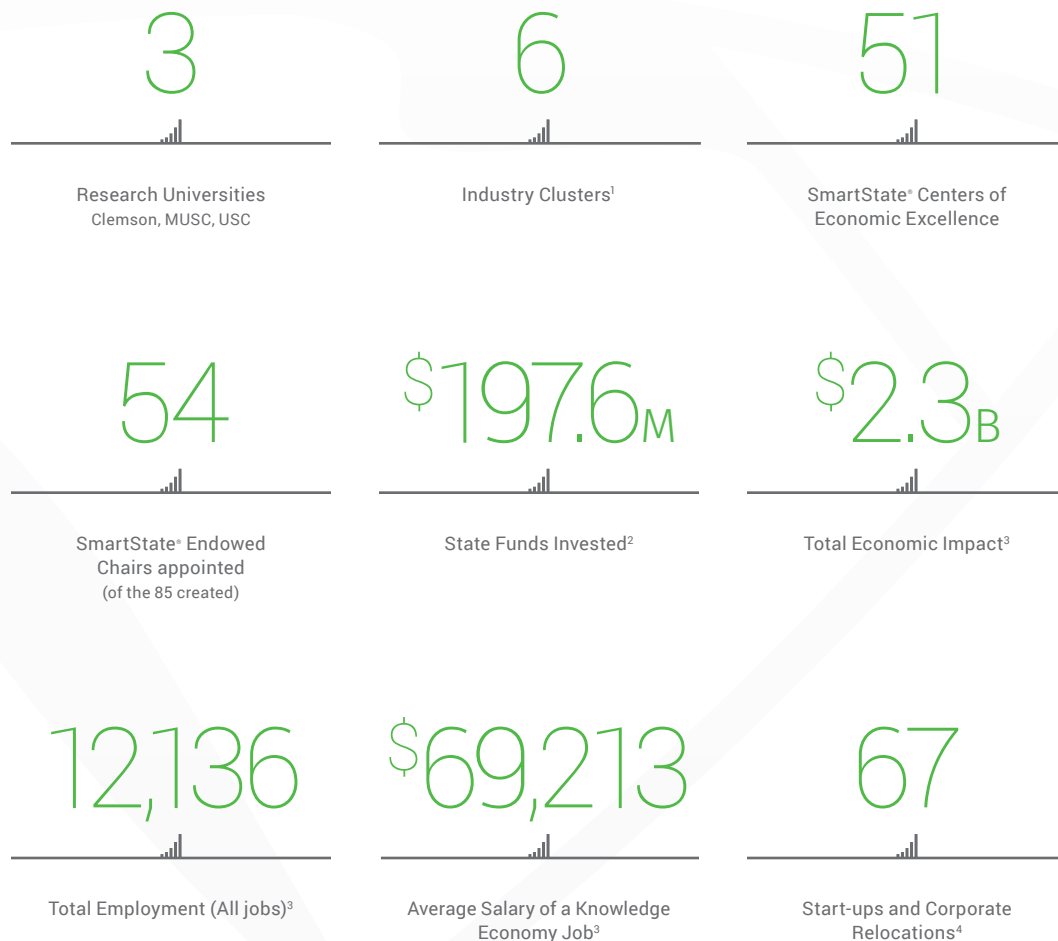
Moore School of Business  
University of South Carolina

*“Though job creation is critically important for economic growth, both the quality and quantity of jobs matter. Since its inception in 2002, the SmartState® Program has generated both — more than 10,000 total jobs with annual salaries that are significantly above the state average.”*

— DR. JOSEPH VON NESSEN

RESEARCH ECONOMIST, MOORE SCHOOL OF BUSINESS, UNIVERSITY OF SOUTH CAROLINA

## SMARTSTATE® PROGRAM BY THE NUMBERS



1 Industry-focused research is conducted in six areas of global importance: Advanced Materials and Nanotechnology, Automotive and Transportation, Biomedical, Energy, Information Science, and Pharmaceutical.

2 Includes \$180 million from the State Education Lottery appropriations and \$17.6 million accrued interest from SmartState® Program endowment.

3 The figures reported are from the November 2015 Economic Impact of the SmartState® Program analysis conducted by the Darla Moore School of Business. Of the total 12,136 jobs, 4,936 are knowledge economy jobs created directly through the SmartState® Program including 602 SmartState® Personnel; 1,204 Start-up Company and Corporate Relocation Personnel; 25 Alumni placed with in-state employers; and 3,105 employed through Extramural Research Funding. The remaining 7,200 jobs are indirect employment arising from the economic multiplier effect. For more information about the economic impact analysis, see page 14.

4 See page 16 for a listing of investors, start-ups and corporate relocations.



# Investors, Start-ups, and Corporate Relocations in SC

## CORPORATE AND ORGANIZATIONAL INVESTORS

More than three dozen companies have invested \$500,000 or more in the SmartState® Program.

- Abney Foundation
- BASF
- Bank of America Foundation
- Biomass Gas & Electric
- BlueCross BlueShield Foundation of SC
- BMW
- Comporium Group
- Daniel Island Company
- Dialysis Clinics, Inc.
- Duke Energy Foundation
- Electric Cooperatives of South Carolina
- Fluor Corporation
- Force Protection Industries
- General Atomics
- George B. Sibert Annuity
- GlaxoSmithKline
- Greenville Hospital System
- Health Sciences South Carolina
- J.E. Sirrine Foundation
- Kellogg Foundation
- Kentwool
- Michelin
- Okuma
- Palmetto Health
- PalmettoNet
- Research to Prevent Blindness
- Robert Wood Johnson Foundation
- Samuel Freeman / Donaldson Charitable Trust
- Santee Cooper
- Smith & Nephew
- Spartanburg Regional Healthcare System
- The Duke Endowment
- The Spaulding Paolozzi Foundation
- Timken
- Toyota
- Westinghouse

## START-UP COMPANIES

Start-up companies that were founded as a result of research at USC, MUSC, and Clemson University:

- Advanced Photonic Crystals
- Cephos
- DF Werke, LLC
- Doxy.me
- Fibro Therapeutics, Inc.
- First String Research
- GeoMat, LLC
- Hydrogen Hybrid Mobility, LLC
- ImmoMod, Inc.
- Inquisatex Epitherapeutics, LLC
- IntrusinMyFamily.com
- MagAssemble, LLC
- MicroVide
- MitoChem Therapeutics, LLC
- MitoHealth
- NextGenEn
- NXT
- Palmetto Fuel Cell Technologies, LLC
- Parallel Permeation, Inc.
- Patient Guided Health Solutions, LLC
- Perfect Mixing, LLC
- Protara, LLC
- SAGE Energy Solutions
- Schnellgen, Inc.
- SemiAllogen, Inc
- SimTunes, LLC
- Smart Innovations, LLC
- South Carolina Science Solutions, LLC
- Specialty & Custom Fibers, Inc.
- Tetramer Technologies
- Vortex Biotechnology
- Zeriscope, Inc.
- 52 Inc.

## CORPORATE RELOCATIONS

Companies that have relocated to South Carolina to take advantage of the expertise, resources, and graduates in the SmartState® Program:

- American Titanium Works (ATW) Manufacturing
- American Titanium Works (ATW) Technology Center
- BMW Information Technology Research Center (ITRC)
- CADFEM U.S.\*
- Charge2Target
- CleanEnergy
- COE Optics
- Computech\*
- Cooliemon Technologies\*
- DreamWeaver\*
- EHD Tech
- Environment and Health Inc. (EHG)
- Esys Automation
- Fields Group, LLC.\*
- Focus Chemicals\*
- Greenway Energy, LLC
- Innoventure
- IndySoft
- Intec U.S. Inc.
- JTEKT Technology Center
- Mallet Technology\*
- Michelin
- Michelin Incubator
- Mumford Industries\*
- OmniSource
- Proterra, Inc.
- Roding\*
- Sage Automotive Interiors\*
- Senex Biotechnonology, Inc.
- Simpack, Inc.
- ThermoPur Technologies\*
- Toho Tenax\*
- Tigges\*
- Trulite

\* In May 2012, CU-ICAR opened the doors to the Center for Emerging Technologies (CET) facility, its first multi-tenant building. CET provides office, administrative, and laboratory space for transportation, technology, and energy sectors. These companies have positioned themselves on the CU-ICAR campus to be close to the SmartState® Endowed Chairs and their research teams.

# SMART MOVE: SCIENCE CAFÉ COMES TO CHARLESTON

*In restaurants and bars across the country, people are gathering not to cheer on their favorite sports teams. Instead, they're gathering to discuss and debate scientific topics with some of the brightest researchers and scientists in the world — and having a great time.*

The movement, which originated in Boston, is called Science Café. EngenuitySC, based in Columbia, brought Science Café to South Carolina in 2007 with the help of a University of South Carolina professor. In 2012, EngenuitySC forged a relationship with the SmartState® Program, giving SmartState® Endowed Chairs a unique forum for sharing their research with the public.

Science Café has been so popular in the Midlands that the Medical University of South Carolina (MUSC) launched its own Science Café this September. Dr. Kenneth Tew, the John C. West Endowed Chair in Cancer Research, kicked off the series by speaking on the benefits and dangers of antioxidants. As guests enjoyed antioxidant-rich cocktails prepared by Fish restaurant, Dr. Tew apprised his audience of his research on antioxidants and the many misconceptions surrounding them.

MUSC will follow its Science Café launch with an evening with Dr. Joseph Helpert, the SmartState® Endowed Chair in Brain Imaging, in early 2016. His topic — *Image Matters: From Youth to Old Age, From Attention Deficit to Alzheimer's Disease - A Look Through the Eye of Magnetic Resonance Imaging* — may seem intimidating, but is already generating advance interest.

Loretta Lynch-Reichert, Director MUSC Office of Strategic Initiatives and Policy Management, believes the secret to Science Café's success is that people are naturally curious about science and excited to have a "backstage pass" to meet and interact with SmartState® Endowed Chairs. "Anyone can come, the topics are fascinating, and there's no cost other than patronizing the host restaurant. It's great entertainment," she said.

Charleston, like Columbia, will host Science Cafés throughout the winter, each featuring a SmartState® Endowed Chairs with a story to share.

**SCIENCE CAFE**



Dr. Kenneth Tew, John C. West Endowed Chair in Cancer Research, charms the crowd gather at Charleston's inaugural Science Café in September.

"We thought our first Science Café with Dr. Kenneth Tew would last about an hour. Nearly two hours later, guests were still asking questions. The public is very interested in the research at MUSC and our SmartState Endowed Chairs are very open to discussing their work and answering questions."

— **LORETTA LYNCH-REICHERT, MS, DIRECTOR**

MUSC Office of Strategic Initiatives and Policy Management





Nancy DeMore, MD, FACS  
BMW SMARTSTATE ENDOWED CHAIR  
IN CANCER RESEARCH  
SMARTSTATE CENTER FOR  
TOBACCO-RELATED MALIGNANCIES



“Current breast cancer screening methods have a high rate of FALSE POSITIVES, increasing anxiety and breast biopsies. We want to CHANGE that.”



# BREAST CANCER: THE QUEST FOR NO MORE FALSE POSITIVES

*A 2011 study by the Breast Cancer Surveillance Consortium confirmed what many women already knew: mammography yields too many false positives.*

According to the study, after ten years of annual screenings, more than half of women are called back for a second mammogram due to something suspicious in the first mammogram. Up to nine percent undergo biopsies for something suspicious that turns out not to be cancer.

Another breast cancer screening modality, MRI, is also associated with a high false positive rate. This lack of accuracy can cause inconvenience and anxiety for patients, not to mention that biopsies are painful and cause scars. Duplication of screenings and unnecessary biopsies are costly to the healthcare system.

Nancy DeMore, the BMW SmartState® Endowed Chair in Cancer Research at the Medical University of South Carolina (MUSC), is developing technology with her colleagues at the Hollings Cancer Center and University of North Carolina Chapel Hill with the hope to find a solution to this problem. Recently, the National Institutes of Health (NIH) awarded DeMore and her colleagues a three-year, \$1.2 million grant to support their research, which involves using a molecularly targeted ultrasound contrast agent. The target is a protein that is expressed in the vasculature of breast cancer tumors, but not expressed in normal blood vessels. In pre-clinical studies, the contrast agent is taken up only by tumors and not in normal tissue.

DeMore has dedicated much of her research career to the field of angiogenesis, focusing on blood vessel growth to breast cancer tumors. It was through genomic profiling of malignant tumor endothelium that she discovered a novel protein overexpressed in breast tumor vasculature. The protein, called SFRP2, is expressed in the vasculature of certain types of breast cancer.

DeMore and her colleagues believe that by combining breast ultrasound with the application of a molecularly targeted contrast agent, whose target is specific to tumor vessels, they can better detect breast cancer lesions, thus providing an improved imaging modality that may reduce the number of false positives. Dr. Paul Dayton of UNC-Chapel Hill, DeMore and her team have generated an SFRP2 molecularly targeted ultrasound contrast agent. Preliminary data indicates that the contrast agent accumulates in the vasculature of tumors, with minimal interaction from normal vessels. The presence of this contrast agent can then be detected with high sensitivity using a clinical ultrasound system.

“A surgeon **IMPACTS** one cancer patient at a time, while a researcher can **IMPROVE SURVIVAL** for thousands.”

DeMore is excited about the potential of the antibody and contrast agents, both of which she has patented. Improving the sensitivity of breast cancer screenings would greatly reduce the number of false positives. Greater specificity in tumor size and location would be a significant benefit to surgeons. She also has a personal motivation to see this new technology succeed. DeMore's mother and grandmother both had breast cancer. “As a surgeon, I impact one patient at a time. As a researcher, I can possibly improve treatments for thousands.”

“The NIH awarded a **\$7.5 MILLION GRANT** to Dr. DeMore and her colleagues at MUSC and the University of North Carolina.”





Amy Landis, PhD

THOMAS F. HASH '69

SMARTSTATE ENDOWED CHAIR

SMARTSTATE CENTER IN

SUSTAINABLE DEVELOPMENT

**CLEMSON**  
UNIVERSITY

“ Dr. Landis is  
**INTERNATIONALLY  
RECOGNIZED** for  
sustainable development.  
She has more than \$7 million  
in research dollars. ”

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# CREATING SUSTAINABLE IMPACT

*Amy Landis is all about impact — as long as it's sustainable.*

As an undergraduate studying chemistry, Amy Landis realized she wanted to make a greater impact on the world than a career in a lab would afford. So she earned a PhD in Civil and Materials Engineering at the University of Illinois Chicago and set her sights on a new and growing industry: sustainable development.

What sounds like a trendy buzzword is a serious field involving science, informatics and social design. Entire industries are seeking experts like Landis who joined Clemson University in June 2015 as the Thomas F. Hash '69 SmartState® Endowed Chair in Sustainable Development. Researchers from at least 14 different institutes, centers, and colleges within Clemson are involved in the SmartState® Center in Sustainable Development, led by Landis. They will address diverse areas such as the environment, economics, energy and health care.

Although Landis joined Clemson less than six months ago, she has hit the ground running. Of great interest to South Carolina, which produces more tires than any other state in the country, is her \$8 million project with the United States Department of Agriculture (USDA) to create a domestic source of natural rubber for tires. Most natural rubber comes from Indonesia, Malaysia, or Thailand. According to Landis, a U.S. source of natural rubber would meet the “Triple Bottomline of Sustainability.”

“In sustainable development, we look for three things: economic feasibility, whether or not it harms the environment or uses finite resources, and the societal impact. Does the project create job growth, improve the quality of jobs and increase diversity? The USDA tire project hits a home run,” Landis said.

Landis and her colleagues have identified a shrub that grows in desert areas of the U.S. Southwest that can be used for rubber. In August, the team tested prototype tires made from the U.S.-sourced rubber on a test track in San Antonio, Texas. The tires performed equal to or better than rubber sourced from Asia.

“We have found a U.S. **GROWN SOURCE OF RUBBER** for tires. In road tests, our prototypes deliver performance that’s **EQUAL OR BETTER THAN** commercial tires.”

“What’s exciting is this creates new jobs in arid parts of the country. The plant is indigenous and doesn’t harm the environment. South Carolina, with its tire and automotive industries, stands to benefit greatly from a local source of rubber,” Landis said.

Landis is also working with the City of Greenville, the Greenville Chamber of Commerce, and businesses to create a sustainability plan for the community and its economy. Under consideration are long-term energy, infrastructure and transportation needs and the types of businesses the region wants to attract.

“Our intent is to guide people to sustainable economies using sustainable practices. When you explain the value to people, whether it’s community leaders, businesses, students or faculty, people get very excited and are chomping on the bit to get started. The connection to community is very real,” Landis said.





“I am **PASSIONATE** about increasing **DIVERSITY** in STEM education. We all have the power to have an **IMPACT**.”







# SMARTSTATE® CENTERS AND ENDOWED CHAIRS

*The work of South Carolina's SmartState® Centers is exciting, groundbreaking, and of critical importance to the state, nation, and world. What follows is a brief overview of each Center.*

## TOTALS FOR SMARTSTATE® PROGRAM

-  **51** SmartState® Program Centers Awarded
-  **85** SmartState® Endowed Chairs Created
-  **54** SmartState® Endowed Chairs Appointed
-  **31** SmartState® Endowed Chairs Remaining to be Appointed



	<b>13</b>	<b>18</b>	<b>20</b>
	<b>16</b>	<b>28</b>	<b>41</b>
	<b>9</b>	<b>21</b>	<b>24</b>
	<b>7</b>	<b>7</b>	<b>17</b>

Program totals reported as of November 2015. In cases of joint proposals, Centers awarded by institution are tallied by the fiscal agent. Endowed chairs are tallied based on the assigned institution. USC's assigned endowed chairs include one joint appointment with MUSC. On the pages that follow, information about each SmartState® Center is provided including the date the Center was approved, the institution(s) awarded, the state award

amount that must be matched with an equal amount of non-state investment, the appointed endowed chair(s) as of November 2015, reported extramural research funding (federal and private awards) above the match, and a brief description of the research focus. Centers are grouped by industry cluster. For updated information on Centers and program totals, contact the S.C. Commission on Higher Education or visit [SmartStatesc.org](http://SmartStatesc.org).



## ADVANCED FIBER-BASED MATERIALS

**Award Date:** 2006

**State Award Amount:** \$4 million

**University:** Clemson

**Endowed Chair(s):**

Dr. Marek Urban

*J.E. Sirrine Foundation Endowed Chair in  
Advanced Fiber-Based Materials*

**Corporate Partner(s):**

J.E. Sirrine Textile Foundation

**External Funding Above Match:**

\$10.5 million

**Research Focus:**

To provide the vehicle for repositioning existing manufacturing resources to support new industry opportunities based on advanced fiber-based products.

## ENVIRONMENTAL NANOSCIENCE AND RISK

**Award Date:** 2008

**State Award Amount:** \$3 million

**University:** USC

**Endowed Chair(s):**

Dr. Jamie Lead

**External Funding Above Match:**

\$1.6 million

**Research Focus:**

Understand the fundamental properties of nanomaterials and nanomaterials-environment interaction and use these principles to understand and help reduce impacts of nanomaterials as used as well as develop and innovate nanotechnological applications.

## EXPERIMENTAL NANOSCALE PHYSICS

**Award Date:** 2003

**State Award Amount:** \$4 million

**University:** USC

**Endowed Chair(s):**

Dr. Richard Webb

**External Funding Above Match:**

\$5.1 million

**Research Focus:**

Perform basic and applied research of potential spintronic optoelectronic and nanoelectronic devices and/or materials for future applications in information processing, high-speed, high-density electronics, and bio, chemical and radiation sensing.

## MULTIFUNCTIONAL MATERIALS & STRUCTURES (MFMS)

**Award Date:** 2013

**State Award Amount:** \$2 million

**University:** USC

**Endowed Chair(s):**

Dr. Michael van Tooren

**Research Focus:**

The development and supply of engineered materials for high technology industries such as aerospace by providing a foundation of research and development that will enable and enhance growth in the engineered materials field. Specific examples of research and development include: Lightning strike and EMF management, structural integrity, energy storage, essential power for commercial aircraft, and multi-physics-based micro/nano mechanics of dielectric materials.

## OPTICAL MATERIALS/PHOTONICS

**Award Date:** 2004

**State Award Amount:** \$5 million

**University:** Clemson

**Endowed Chair(s):**

Dr. John Ballato

*J. E. Sirrine Textile Foundation Endowed Chair  
in Optical Fiber.*

**Corporate Partner(s):**

J.E. Sirrine Textile Foundation

**External Funding Above Match:**

\$21.7 million

**Research Focus:**

Conduct materials research and recruit and mentor graduate students with a focus on domestic scholars. Identify and foster the latest technologies and initiate partnerships with top national research universities and laboratories, Aid South Carolina industry and economic development partners in the transfer of technology from Clemson to the public sector, and participate in the recruitment of optical technology firms to South Carolina.

## POLYMER NANOCOMPOSITES

**Award Date:** 2004

**State Award Amount:** \$3.5 million

**University:** USC

**Endowed Chair(s):**

Dr. Brian Benicewicz

*Materials Science & Engineering*

**Corporate Partner(s):**

Michelin North American, BASF, U.S.

Navy, PBI Performance Products

**External Funding Above Match:**

\$12.2 million

**Research Focus:**

Development of synthetic tools needed to precisely control the environment or interface between nanoparticles and polymer matrix applicable to optics, electronics, biological, medical, and structural material applications.





## AUTOMOTIVE DESIGN AND DEVELOPMENT

**Award Date:** 2004

**State Award Amount:** \$5 million

**University:** Clemson

### Endowed Chair(s):

Dr. Zoran Filipi  
*Timken Endowed Chair in Automotive Design & Development*

### Corporate Partner(s):

Hertz Corporation, Duke Energy

### External Funding Above Match:

\$5.9 million

### Research Focus:

Focuses on the research and design of advanced powertrains for internal combustion engines and hybrid and electric vehicles, along with lightweight design and materials, functional integration and structural dynamics for vehicles.

## AUTOMOTIVE MANUFACTURING

**Award Date:** 2003

**State Award Amount:** \$5 million

**University:** Clemson

### Endowed Chair(s):

Clemson is recruiting one endowed chair.

### Corporate Partner(s):

BMW

### External Funding Above Match:

\$7.9 million

### Research Focus:

Develops micro-electromechanical systems technologies for manufacturing and improving the efficiency of manufacturing large, complex objects. The goal is for the Center to be the premier automotive and motorsports research and educational facility in the world.

## SUPPLY CHAIN OPTIMIZATION AND LOGISTICS

**Award Date:** 2006

**State Award Amount:** \$2 million

**University:** Clemson

### Endowed Chair(s):

Dr. Scott Mason  
*Fluor Endowed Chair in Supply Chain Optimization & Logistics*

### Corporate Partner(s):

Fluor

### External Funding Above Match:

\$10.3 million

### Research Focus:

Interdisciplinary research addressing the multifaceted problems associated with supply chains. Deliver tangible supply chain optimization and logistics products and services through theoretical and applied research.

## VEHICLE ELECTRONIC SYSTEMS INTEGRATION

**Award Date:** 2004

**State Award Amount:** \$3 million

**University:** Clemson

### Endowed Chair(s):

Clemson is recruiting the *Michelin Endowed Chair in Vehicle Electronic Systems Integration*.

### Corporate Partner(s):

Michelin

### External Funding Above Match:

\$1.7 million

### Research Focus:

Research in automotive and vehicular electronics, particularly systems integration issues, electromagnetic compatibility and electromagnetic modeling.

## AUTOMOTIVE SYSTEMS INTEGRATION

**Award Date:** 2003

**State Award Amount:** \$5 million

**University:** Clemson

### Endowed Chair(s):

Dr. Paul Venhovens  
*BMW Endowed Chair in Automotive Systems Integration*

### Corporate Partner(s):

BMW, Mazda, GM and others

### External Funding Above Match:

\$3.7 million

### Research Focus:

Automotive diagnostics and prognostics, sustainable mobility, concepts, methods and tools. Deriving a simple, flexible energy management control strategy for plug-in hybrid electric vehicles.



## ADVANCED TISSUE BIOFABRICATION

**Award Date:** 2008

**State Award Amount:** \$5 million

**Universities:** MUSC, USC, Clemson

### Endowed Chair(s):

MUSC, USC, and Clemson are recruiting Endowed Chairs in *Biofabrication Biology* and *Biofabrication Engineering*.

### Research Focus:

Develop innovative technologies and approaches that will enable repair, replacement, or restoration of diseased cells, tissues and organs.

## BRAIN IMAGING

**Award Date:** 2003

**State Award Amount:** \$5 million

**Universities:** USC, MUSC

### Endowed Chair(s):

Dr. Chris Rorden, USC

Dr. Joseph Helpert, MUSC

MUSC is recruiting one additional endowed chair.

### External Funding Above Match:

\$27.4 million

### Research Focus:

Creating a world-class brain imaging center. Initiated the first study using transcranial magnetic stimulation (TMS). Combined with functional MRI, TMS provides a short strong magnetic field useful for studying how the brain works. Specific studies include stroke-related brain injury and MRI physics techniques for clinical and neuroscience research.

## PROSTATE CANCER DISPARITIES

**Award Date:** 2008

**State Award Amount:** \$3.6 million

**University:** MUSC, USC, SCSU

### Endowed Chair(s):

Dr. Chanita Hughes-Halbert, MUSC  
*AT&T Distinguished Endowed Chair in Cancer Equity in Cancer Disparities*

MUSC and USC are each recruiting one endowed chair in *Cancer Disparities*.

### Corporate Partner(s):

**External Funding Above Match:**  
\$32.5 million

### Research Focus:

Facilitate statewide partnerships in cancer prevention and control research, clinical trials, and training to significantly decrease disparities in prostate cancer incidence and mortality in South Carolina.

## CHILDHOOD NEUROTHERAPEUTICS

**Award Date:** 2006

**State Award Amount:** \$5 million

**Universities:** USC, MUSC

### Endowed Chair(s):

Dr. Jeffrey Twiss, USC

*Child and Adolescent Neurochemistry*

Manuel Casanova

*Translational Neurotherapeutics*

USC is recruiting one endowed chair in *Translational Clinical Research*.

MUSC is recruiting one endowed chair in *Neurodevelopmental Disorders*.

### External Funding Above Match:

\$7.2 million

### Research Focus:

Prevention of brain damage in premature infants and curing infant brain diseases through cellular engineering. Also working on cognitive behavioral tasks in transgenic mice to determine if therapeutics can improve functional development outcomes, which may someday help children with ADHD.

## CLINICAL EFFECTIVENESS AND PATIENT SAFETY

**Award Date:** 2006

**State Award Amount:** \$5 million

**Universities:** MUSC, USC

### Endowed Chair(s):

Dr. John Schaefer, MUSC

*Lewis Blackman Endowed Chair for Patient Simulation & Research for Health Sciences South Carolina*

Dr. Jihad Obeid, MUSC  
*Biomedical Informatics*

USC is recruiting one endowed chair.

### External Funding Above Match:

\$12.1 million

### Research Focus:

Quality and safety of patient care, and improving the medical informatics aspects of data acquisition and the evaluation of health information technology on the quality and safety of clinical care processes and outcomes. The Center also focuses on developing South Carolina as a training center for physicians and other health professions using human simulators and sophisticated software-based training scenarios.





## HEALTHCARE QUALITY

**Award Date:** 2007

**State Award Amount:** \$5 million

**Universities:** USC, MUSC

### Endowed Chair(s):

Dr. Les Lenert, MUSC  
*Medical Bioinformatics*

Dr. Xiaoming Li, USC  
*Translational Clinical Research.*

### Corporate Partner(s):

The Duke Endowment

### External Funding Above Match:

\$18.3 million

### Research Focus:

Creating a unique and comprehensive clinical data store that collects data from providers, enhances data usability, and makes it available in an easily accessible form for participants to use for clinical improvement and research purposes.

## HEALTH FACILITIES DESIGN AND TESTING

**Award Date:** 2007

**State Award Amount:** \$2 million

**University:** Clemson, MUSC

### Endowed Chair(s):

Dr. Anjali Joseph, Clemson University  
*Architecture & Health Research.*

MUSC is recruiting one endowed chair in  
*Clinical Practice and Human Factors.*

### External Funding Above Match:

\$1.4 million

### Research Focus:

The impact of health facility design on health and healthcare delivery and the creation of architectural settings that provide better support for the health, safety, and wellbeing of patients and staff.

## INFLAMMATION AND FIBROSIS RESEARCH

**Award Date:** 2010

**State Award Amount:** \$5 million

**University:** MUSC

### Endowed Chair(s):

Carol Feghali-Bostwick, Ph.D.  
*Kitty Trask Holt Endowed Chair for Scleroderma Diseases*

MUSC is recruiting one endowed chair in  
*Inflammation Research.*

### External Funding Above Match:

\$14.2 million

### Research Focus:

Develop new therapies and education programs for inflammatory and fibrosing rheumatic diseases such as lupus, scleroderma, and rheumatoid arthritis.

## MARINE GENOMICS

**Award Date:** 2003

**State Award Amount:** \$4 million

**Universities:** MUSC, College of Charleston

### Endowed Chair(s):

Dr. Gavin Naylor, MUSC  
*Bioinformatics*

MUSC is recruiting one endowed chair.

### External Funding Above Match:

\$8.9 million

### Research Focus:

Monitoring and predicting the impact of environmental changes on marine biosystems, which can, in turn, affect human health. Specific areas of study include environmental causation in wildlife, human disease and susceptibility, and mapping variability in genomes and populations; as well as research of shark and ray species.

## MOLECULAR PROTEOMICS IN CARDIOVASCULAR DISEASE AND PREVENTION

**Award Date:** 2006

**State Award Amount:** \$5 million

**University:** MUSC

### Endowed Chair(s):

Dr. Sheldon E. Litwin  
*Countess Alicia Spaulding Palozzi Chair in Cardiovascular Imaging*

MUSC is recruiting the *Volpe SmartState® Endowed Chair in Cardiovascular Biomarker Development for Diagnosis & Prevention.*

### External Funding Above Match:

\$4.5 million

### Research Focus:

Translation advances in basic bench science to clinical bedside care to improve the health care of the citizens of South Carolina. Priorities include diagnostic techniques, therapeutic management strategies, relations of protein signatures to clinical outcomes for risk assessment, and treatment of disease manifestation.

## NEUROSCIENCE

**Award Date:** 2003

**State Award Amount:** \$3 million

**University:** MUSC

### Endowed Chair(s):

MUSC is recruiting the *William E. Murray Endowed Chair in Neuroscience*

MUSC is recruiting the *Josephine Tucker Morse Endowed Chair in Parkinson's Disease.*

### External Funding Above Match:

\$14.5 million

### Research Focus:

Brain neuromodulatory systems and their roles in cognitive performance, drug abuse, sleep and affective disorders. Other areas of research are movement disorders such as Ataxia, Choro, Bradykinesia and multiple system atrophy.



## PROTEOMICS

**Award Date:** 2003

**State Award Amount:** \$4 million

**University:** MUSC

### Endowed Chair(s):

Dr. Richard Drake

MUSC is recruiting one additional endowed chair.

### External Funding Above Match:

\$21.5 million

### Research Focus:

Develop and use high-end analytical technologies to understand the biologic profile of protein expression in health and disease. Developing enzyme-based analytical methods to effectively detect biomolecules in tissues and tissue microarray platforms.

## REGENERATIVE MEDICINE

**Award Date:** 2004

**State Award Amount:** \$5 million

**Universities:** MUSC, USC, Clemson

### Endowed Chair(s):

Dr. Martin Morad, USC

*BlueCross BlueShield of SC Foundation Chair in Cardiovascular Health*

Dr. Stephen Duncan, MUSC

*Regenerative Medicine and Cell Biology*

Clemson is recruiting the *Hansjörg Wyss Endowed Chair in Bioengineering*.

### External Funding Above Match:

\$40.6 million

### Research Focus:

Regenerative medicine approach for cardiovascular applications and provide expertise in clinical trials, statistics and/or assay development. Application of regenerative medicine and tissue engineering approaches to orthopaedic and neural diseases. Regeneration of tissue and organs for repairing, replacing, and maintaining organ function.

## REHABILITATION AND RECONSTRUCTION SCIENCES

**Award Date:** 2007

**State Award Amount:** \$5 million

**University:** USC

### Endowed Chair(s):

Dr. John Brooks

### Corporate Partner(s):

Smith&Nephew

### External Funding Above Match:

\$15.2 million

### Research Focus:

Medical health needs in orthopaedic disorders, exercise and sports-related injury prevention, treatment, and rehabilitation. The Center investigates the biologics of tissue-engineered materials and implantable devices to find solutions to musculoskeletal maladies.

## RENAL DISEASE BIOMARKERS

**Award Date:** 2008

**State Award Amount:** \$5 million

**University:** MUSC

### Endowed Chair(s):

MUSC is recruiting one endowed chair in *Renal Biomarkers* and one endowed chair in *Translational Nephrology Research*.

### External Funding Above Match:

\$4.7 million

### Research Focus:

Identifying biomarkers that identify or predict prognosis for acute kidney injury, diabetic neuropathy, lupus nephritis, and focal segmental glomerulosclerosis.

## SENIORSMART®

**Award Date:** 2007

**State Award Amount:** \$5 million

**Universities:** USC, Clemson

### Endowed Chair(s):

Dr. Sue Levkoff, USC

*SmartHOME®*

USC is recruiting one endowed chair in *SmartBRAIN®*.

Clemson is recruiting one endowed chair in *SmartWHEELS®*.

### External Funding Above Match:

\$7.3 million

### Research Focus:

Three areas of research include: *SmartBRAIN®* (maintaining intellectual activity), *SmartWHEELS®* (independent mobility outside the home) and *SmartHOME®* (independent mobility inside the home) to foster independent living among seniors.





## STROKE

**Award Date:** 2007

**State Award Amount:** \$5 million

**Universities:** MUSC, USC

### Endowed Chair(s):

Dr. Robert Adams, MUSC  
*Stroke*

Dr. Mark Chimowitz, MUSC  
*Countess Alicia Paolozzi Endowed Chair in Translational Neurology*

Dr. Souvik Sen, USC  
*Clinical Neurology*

### External Funding Above Match:

\$19.5 million

### Research Focus:

Enhancing stroke treatment, prevention, and recovery. This Center is developing new stroke-related therapeutics, drug discovery, and biotechnology, and is a leader in stroke telemedicine.

## TECHNOLOGY CENTER TO ENHANCE HEALTHFUL LIFESTYLES

**Award Date:** 2009

**State Award Amount:** \$3 million

**Universities:** USC, MUSC

### Endowed Chair(s):

Dr. Frank Trieber, MUSC  
*Technology Applications for Disease Prevention, Management, and Risk Reduction*

Delia West, USC  
*Technology Application for Health Behavior Change.*

### External Funding Above Match:

\$13.6

### Research Focus:

Develop and test lifestyle interventions for improving health, preventing illness and managing chronic health problems caused by physical inactivity, poor diets, and other lifestyle behaviors.

## TOBACCO-RELATED MALIGNANCIES

**Award Date:** 2007

**State Award Amount:** \$5 million

**University:** MUSC

### Endowed Chair(s):

Dr. Nancy DeMore  
*BMW Chair in Cancer Research and Burtshy Family Distinguished Endowed Chair in Lung Cancer Research.*

MUSC is recruiting one endowed chair.

### Corporate Partner(s):

BMW

### External Funding Above Match:

\$52.1 million

### Research Focus:

Devoted to discovering tobacco-related malignancy biomarkers via clinical trials with a specific focus on tobacco-related cancers. Additionally, the Center is evaluating the specificity and sensitivity of novel biomarkers by molecular epidemiologic techniques across the diverse populations of South Carolina.

## TRANSLATIONAL BIOMEDICAL INFORMATICS

**Award Date:** 2013

**State Award Amount:** \$2 million

**University:** MUSC

### Endowed Chair(s):

MUSC is recruiting one endowed chair.

### Research Focus:

The new Center will provide expertise in translational biomedical informatics essential for cutting-edge, innovative methodologies to link genetic/genomic data with vast amounts of clinical data. The contributions of the center to data sharing/analysis will decrease cost and increase efficiency in research and healthcare delivery and provide a robust IT platform for industry partnerships and new company formation.

## VISION SCIENCE

**Award Date:** 2005

**State Award Amount:** \$4.5 million

**Universities:** MUSC

### Endowed Chair(s):

Dr. Barbel Rohrer  
*Chair in Gene and Pharmaceutical treatment of Retinal Degenerative Diseases*

MUSC is recruiting one endowed chair.

### Corporate Partner(s):

Alcon Labs, Taligen, Alexion Pharmaceuticals

### External Funding Above Match:

\$21.8 million

### Research Focus:

New treatments for macular degeneration, development of new anti-glaucoma agents and innovations in cataract surgery. The Center also focuses on using advances in bioengineering and material sciences to improve the diagnosis, treatment, and prevention of eye diseases.



## CATALYSIS FOR RENEWABLE FUELS

**Award Date:** 2005

**State Award Amount:** \$3 million

**University:** USC

**Endowed Chair(s):**

Dr. John Regalbuto

**External Funding Above Match:**

\$9.2 million

**Research Focus:**

Developing catalysts that allow production of alternative fuels from renewable sources, thereby reducing dependence on imported oil and carbon fuel. The Center focuses on synthesizing inorganic catalysts for converting biomass to biofuels and synthesizing electrocatalysts for solar fuels and fuel cells.

## GENERAL ATOMICS CENTER FOR THE DEVELOPMENT OF TRANSLATIONAL NUCLEAR TECHNOLOGY

**Award Date:** 2009

**State Award Amount:** \$3 million

**University:** USC

**Endowed Chair(s):**

Theodore Besmann  
*Energy and Nuclear Security.*

**Corporate Partner(s):**

General Atomics

**External Funding Above Match:**

\$4.8 million

**Research Focus:**

The production of biofuels and coal to liquid fuels using nuclear process heat for more efficient production and the reduction of wastes associated with recycling of used fuel, seeking more long term strategies to manage used fuel, recovery of energy value in used fuel, and eliminating concerns over proliferation associated with recycling used fuel.

## INNOVATION AND COMMERCIALIZATION

**Award Date:** 2004

**State Award Amount:** \$5 million

**University:** USC

**Endowed Chair(s):**

USC is recruiting one endowed chair in *Discovery and Innovation.*

**Corporate Partner(s):**

Office of Naval Research (projects)

**External Funding Above Match:**

\$21.6 million

**Research Focus:**

Advance the science and use of clean, secure and renewable energy technologies and transportation fuel, including hydrogen fuel cells.

## NUCLEAR SCIENCE AND ENERGY

**Award Date:** 2008

**State Award Amount:** \$3 million

**University:** USC

**Endowed Chair(s):**

Dr. Dan Gabriel Cacuci  
*Nuclear Power and Advanced Materials*

**Corporate Partner(s):**

Duke Energy, Progress Energy, SCANA, Westinghouse

**External Funding Above Match:**

\$6.6 million

**Research Focus:**

Performance, efficiency, and maintenance issues at existing and future nuclear power plants using expertise modeling and simulation related to nuclear fuels and materials.

## SMART GRID TECHNOLOGY

**Award Date:** 2013

**State Award Amount:** \$5 million

**University:** Clemson

**Endowed Chair(s):**

Clemson is recruiting one endowed chair.

**Corporate Partner(s):**

Duke Energy

**External Funding Above Match:**

\$739,331

**Research Focus:**

Develop technology to better manage global electric grid systems.

## SOLID OXIDE FUEL CELLS

**Award Date:** 2006

**State Award Amount:** \$3 million

**University:** USC

**Endowed Chair(s):**

USC is recruiting one endowed chair.

**External Funding Above Match:**

\$55.1 million

**Research Focus:**

Develop solid oxide fuel cells for use in large, high-power systems such as industrial sites and electricity generating stations as well as for mobile power for computers, cell phones, and other electronics.

## STRATEGIC APPROACHES TO THE GENERATION OF ELECTRICITY (SAGE)

**Award Date:** 2007

**State Award Amount:** \$5 million

**University:** USC

**Endowed Chair(s):**

Dr. Jochen Lauterbach

**External Funding Above Match:**

\$9.8 million

**Research Focus:**

Developing, improving, and advancing technologies to enhance the environmental performance of electricity production. Other work focuses on converting CO<sub>2</sub> to chemicals, fuel cell and hydrogen storage-related research, and chemical production from coal to biomass.





## CYBERINSTITUTE

**Award Date:** 2008

**State Award Amount:** \$2 million

**University:** Clemson

### Endowed Chair(s):

Clemson is recruiting the *C. Tycho Howle Endowed Chair in Collaborative Computing Environments*

### Corporate Partner(s):

Omnibond Systems, LLC

### External Funding Above Match:

\$4.1 million

### Research Focus:

Connecting research and scholarship, particularly in the fields of human computer interaction, data storage, interpretation, and visualization to the commercial sector via strategic industrial partnerships. Conduct research in conjunction with the Clemson University Cyber-Institute.

## DATA ANALYSIS, SIMULATION, IMAGING, AND VISUALIZATION

**Award Date:** 2010

**State Award Amount:** \$2 million

**University:** USC

### Endowed Chair(s):

Dr. Wolfgang Dahmen  
*Williams-Hedberg-Hedberg Chair of Mathematics*

### External Funding Above Match:

\$1.9 million

### Research Focus:

Develop technology for transforming data into knowledge concentrating on inline data processing, multi-sensor data acquisition, tissue modeling, atomic scale modeling, and bioimaging.

## OPTOELECTRONICS

**Award Date:** 2008

**State Award Amount:** \$2 million

**University:** Clemson

### Endowed Chair(s):

Dr. Eric Johnson  
*PalmettoNet Endowed Chair in Optoelectronics*

### Corporate Partner(s):

Advanced Photonic Crystal, Tetramer Technologies

### External Funding Above Match:

\$3.8 million

### Research Focus:

Improving devices, systems, and protocols used in high-speed optical communications networks.

## SUSTAINABLE DEVELOPMENT

**Award Date:** 2010

**State Award Amount:** \$4 million

**University:** Clemson

### Endowed Chair(s):

Dr. Amy Landis  
*Thomas F. Hash '69 Endowed Chair in Sustainable Development*

### External Funding Above Match:

\$2.1 million

### Research Focus:

Developing new technologies to support real-time monitoring and management of natural and built environments through the Intelligent River™ Project. The Center has created a wireless sensor that can monitor and transmit environmental data in real time.

## TOURISM AND ECONOMIC DEVELOPMENT

**Award Date:** 2005

**State Award Amount:** \$2 million

**University:** USC

### Endowed Chair(s):

Dr. Simon Hudson

### Corporate Partner(s):

Rawle Murdy  
US Travel Association (USTA)

### External Funding Above Match:

\$303,459

### Research Focus:

Tourism is a \$17 billion industry in South Carolina. The Center conducts cutting-edge tourism and hospitality research initiatives that will improve South Carolina's competitiveness as a tourism destination.

## URBAN ECOLOGY AND RESTORATION

**Award Date:** 2006

**State Award Amount:** \$2 million

**University:** Clemson

### Endowed Chair(s):

Dr. Robert F. Baldwin  
*Margaret H. Lloyd SmartState Chair in Urban Ecology*

### External Funding Above Match:

\$6.4 million

### Research Focus:

Applied research in environmental science and engineering, habitat restoration and water quality management; environmental industry growth; and urban ecology projects in South Carolina.



## CANCER DRUG DISCOVERY

**Award Date:** 2005

**State Award Amount:** \$5 million

**Universities:** MUSC, USC

### Endowed Chair(s):

Dr. John LeMasters, MUSC  
*GlaxoSmithKline Distinguished  
Endowed Chair*

Dr. Patrick Woster, MUSC  
*Medicinal Chemistry*

Dr. Mark Hamann, MUSC  
*Charles & Carol Cooper Chair in Pharmacy*

USC is recruiting one endowed chair in  
*Structural Biology and Pharmacy.*

### Corporate Partner(s):

GlaxoSmithKline

### External Funding Above Match:

\$17.5 million

### Research Focus:

Advanced biomedical screening technologies to identify disease mechanisms and targets, and also screening drug candidates. Structural biology for target analysis, chemical biology for designing drug candidates, and advanced biomedical screening technologies.

## CANCER STEM CELL BIOLOGY AND THERAPY

**Award Date:** 2008

**State Award Amount:** \$5 million

**Universities:** MUSC, Clemson

### Endowed Chair(s):

Dr. Zihai Li, MUSC  
*Abney Endowed Chair Remembering Sally  
Abney Rose*

Dr. Xue Zhong Yu, MUSC  
*Biomedical Engineering*

### External Funding Above Match:

\$9.9 million

### Research Focus:

Developing new technologies for isolating, growing, and manipulating cancer stem cells. This will enable the Center to find ways to use adult stem cells from bone marrow or organs to treat cancer.

## GASTROINTESTINAL CANCER DIAGNOSTICS

**Award Date:** 2005

**State Award Amount:** \$5 million

**University:** MUSC

### Endowed Chair(s):

Dr. Carolyn Britten  
*Charles Westerfield Coker Distinguished Chair  
in Gastrointestinal Malignancy*

MUSC is recruiting the *Grace E. DeWolff  
Endowed Chair in Medical Oncology*

### Corporate Partner(s):

Roche Carolina, Bank of America

### External Funding Above Match:

\$12.3 million

### Research Focus:

Clinical and translational gastrointestinal oncology and biomarker development and gastrointestinal (GI) malignancies. Bringing state-of-the-art translational medicine to all GI cancer patients in South Carolina, thereby decreasing the overall impact of cancer mortality and morbidity and closing disparity gaps throughout the state.

## LIPIDOMICS, PATHOBIOLOGY AND THERAPY

**Award Date:** 2009

**State Award Amount:** \$5 million

**University:** MUSC

### Endowed Chair(s):

Dr. J. Alan Diehl  
*Lipidomics & Pathobiology*

Dr. Besim Ogretman  
*Lipidomics Drug Discovery.*

### External Funding Above Match:

\$26.8 million

### Research Focus:

Develop models for translational research and study of lipidomics and their pathobiology with an emphasis on cancer and inflammation.

## MEDICATION SAFETY AND EFFICACY

**Award Date:** 2008

**State Award Amount:** \$2 million

**Universities:** MUSC, USC

### Endowed Chair(s):

Dr. Charles Bennett  
*Frank P. and Josie M. Fletcher Professor of  
Pharmacy*

### External Funding Above Match:

\$4 million

### Research Focus:

Increasing drug safety and effectiveness, as well as decreasing medication errors by identifying the incidence and significance of adverse drug events.

## TRANSLATIONAL CANCER THERAPEUTICS

**Award Date:** 2004

**State Award Amount:** \$5 million

**Universities:** MUSC, USC

### Endowed Chair(s):

Dr. Kenneth Tew, MUSC  
*John C. West Endowed Chair  
in Cancer Research*

Dr. Igor Roninson, USC  
*Drug Efficacy*

### External Funding Above Match:

\$21.3 million

### Research Focus:

Development of new approaches in cancer treatment, including the discovery and development of new drugs. Research also focuses on utilizing mouse models predisposed to cancer to study the impact of gene misregulation and therapeutic agents on tumor development, and the identification and inhibition of new cancer drug targets.



A man with short, light-colored hair, wearing a multi-colored checkered button-down shirt, is smiling and holding a silver tablet. The background is a blurred indoor setting with large windows.

John Brooks, PhD  
SMARTSTATE ENDOWED CHAIR

SMARTSTATE CENTER FOR  
EFFECTIVENESS RESEARCH  
IN ORTHOPEDICS



UNIVERSITY OF  
**SOUTH CAROLINA**

“Doctors and patients try to make the **BEST CHOICES**, but without information about how treatments work in the **REAL WORLD**, decisions are subjective. We want to **CHANGE** that.”

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# A METHODOLOGICAL MERCENARY

*John Brooks has a lot of questions. And Upstate surgeons are helping him find the answers.*

In the 2010, The New York Times published an article in which a medical expert said the rate of hip and knee replacement surgeries in the elderly was too high and the country was spending too much money on these procedures and causing too much pain for seniors.

John Brooks, PhD, is a nationally recognized healthcare economist and the SmartState® Endowed Chair at the SmartState® Center for Effectiveness Research in Orthopedics. He says there is no evidence that the rate of joint replacement surgery is too high or too low in seniors — or in any other patient demographic.

“No one has quantified what rate is right or wrong. Physicians and patients look at the options and make a decision on what they believe is the best path forward,” Brooks explained. “However, with 719,000 knee replacements and 332,000 hip replacements performed each year in the United States, it’s a question that should be answered.”

Brooks is the person to do it. He was recruited by the University of South Carolina (USC) and the Greenville Health System (GHS). GHS is home to the USC School of Medicine Greenville and the Steadman Hawkins Clinic of the Carolinas, the Upstate’s premier orthopedics practice. The corporate partner in Brooks’ SmartState® Endowed Chair is medical device company Smith & Nephew. All have a vested interest in providing patients with the most appropriate care.

The standard approach to determining what is “right” for patients is randomized control trials. For example, in a randomized drug trial, one group gets the pill being tested while another gets a placebo. Because of their invasive nature, randomized controlled trials are rarely feasible for orthopedic conditions.

So Brooks and Steadman Hawkins orthopedic surgeons are applying econometrics — collecting and analyzing real world data on patient treatment choices — to answer whether current treatment rates are too high or too low.

“Why is one procedure chosen **TWICE AS OFTEN** as another? Which rate is right? What is the cost? **ECONOMETRICS** will help answer these **QUESTIONS**.”

“Currently, there is tremendous variations in treatment. Ten percent of patients with torn rotator cuffs have surgery, which is expensive; 40 percent have therapy and 50 percent do nothing. What are the ramifications? We need to find out,” Brook said.

Brooks is establishing a data collection system at Steadman Hawkins to understand why treatment choices were made, to document all diagnoses and treatment and to document patient outcomes. The data will be analyzed to determine best practice. The initial study will focus on new patients with shoulder pain.

The ultimate goal is to use real world data to determine what approaches result in the most favorable outcomes and creating data based guidelines for surgeons. “Physicians want to do the best for each patient. Working with GHS and Steadman Hawkins, we have the opportunity to answer a lot of important questions and make orthopedic care better for patients and the healthcare system.”

“The **GREENVILLE HEALTH SYSTEM** and Steadman Hawkins orthopedic surgeons are working with SmartState to determine the most **EFFECTIVE TREATMENTS**.”



# SMARTSTATE<sup>®</sup> ENDOWED CHAIRS

*South Carolina's SmartState<sup>®</sup> Centers are led by endowed chairs; they are engineers, scientists, and researchers who are recognized experts in their respective fields.*

The role of SmartState<sup>®</sup> Endowed Chairs is to serve as catalyst for the state's knowledge economy. Eighty-five endowed chairs have been approved to fill positions at Clemson, MUSC, and USC across 51 SmartState<sup>®</sup> Centers. As of November 2015, 54 chairs are filled. The SmartState<sup>®</sup> Program welcomed 13 new endowed chairs: Dr. John Ballato, Dr.

Robert F. Baldwin, Dr. Theodore Besmann, Dr. Manuel Casanova, Dr. Wolfgang Dahmen, Dr. Stephen Duncan, Dr. Mark Hamann, Dr. Anjali Joseph, Dr. Amy Landis, Dr. Xiaoming Li, Dr. Besim Ogretman, Dr. Barbel Rohrer, and Dr. Michael van Tooren. We invite you to meet the SmartState<sup>®</sup> Endowed Chairs.



**ROBERT ADAMS**  
Stroke  
MUSC



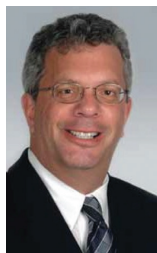
**ROBERT F. BALDWIN**  
Urban Ecology +  
Resoration  
Clemson



**JOHN BALLATO**  
Optical Materials/  
Photonics  
Clemson



**BRIAN BENICEWICZ**  
Polymer  
Nanocomposites  
USC



**CHARLES BENNETT**  
Medication Safety and  
Efficacy  
USC



**THEODORE BESMANN**  
General Atomics  
USC



**CAROLYN BRITTEN**  
Gastrointestinal  
Cancer Diagnostics  
MUSC



**JOHN BROOKS**  
Rehabilitation and  
Reconstruction  
Science  
USC



**DAN GABRIEL CACUCI**  
Nuclear Science and  
Energy  
USC



**MANUEL CASANOVA**  
Childhood  
Neurotherapeutics  
USC



**MARK CHIMOWITZ**  
Stroke  
MUSC



**WOLFGANG DAHMEN**  
Data Analysis  
Simulation Imaging  
and Visualization  
USC



**NANCY DEMORE**  
Tobacco-related  
Malignancies  
MUSC



**J. ALAN DIEHL**  
Lipidomics  
Pathobiology and  
Therapy  
MUSC



**RICHARD DRAKE**  
Proteomics  
MUSC



**STEPHEN A. DUNCAN**  
Regenerative Medicine  
MUSC



**CAROL FEGHALI-  
BOSTWICK**  
Inflammation &  
Fibrosis Research  
MUSC



**ZORAN FILIPI**  
Automotive Design  
and Development  
Clemson



**MARK HAMANN**  
Cancer Drug Discovery  
MUSC



**JOSEPH HELPERN**  
Brain Imaging  
MUSC



**SIMON HUDSON**  
Tourism and Economic  
Development  
USC



**CHANITA HUGHES-  
HALPERT**  
Prostate Cancer  
Disparities  
MUSC



**ERIC JOHNSON**  
Optoelectronics  
Clemson



**ANJALI JOSEPH**  
Health Facilities  
Design and Testing  
Clemson



**AMY LANDIS**  
Sustainable  
Development  
Clemson



**JOCHEN  
LAUTERBACH**  
Strategic Approaches  
to the Generation of  
Electricity (SAGE)  
USC



**JAMIE LEAD**  
Environmental  
Nanoscience and Risk  
USC



**JOHN LEMASTERS**  
Cancer Drug Discovery  
MUSC



**LES LENERT**  
Healthcare Quality  
MUSC



**SUE LEVKOFF**  
SeniorSMART  
USC



**XIAOMING LI**  
Healthcare Quality  
USC



**ZIHAI LI**  
Cancer Stem Cell  
Biology and Therapy  
MUSC



**SHELDON E. LITWIN**  
Molecular Proteomics  
in Cardiovascular  
Disease and  
Prevention  
MUSC



**SCOTT MASON**  
Supply Chain  
Optimization and  
Logistics  
Clemson



**MARTIN MORAD**  
Regenerative Medicine  
USC



**GAVIN NAYLOR**  
Marine Genomics  
MUSC



**JIHAD OBEID**  
Clinical Effectiveness  
and Patient Safety  
MUSC



**BESIM OGRETMAN**  
Lipidomics  
Pathobiology and  
Therapy  
MUSC



**JOHN REGALBUTO**  
Catalysis for  
Renewable Fuels  
USC



**BARBEL ROHRER**  
Vision Science  
MUSC



**IGOR RONINSON**  
Translational Cancer  
Therapeutics  
USC



**CHRIS RORDEN**  
Brain Imaging  
USC



**JOHN SCHAEFER**  
Clinical Effectiveness  
and Patient Safety  
MUSC



**SOUVIK SEN**  
Stroke  
USC



**KENNETH TEW**  
Translational Cancer  
Therapeutics  
MUSC





**FRANK TRIEBER**  
Technology Center  
to Enhance Healthful  
Lifestyles  
MUSC



**JEFFREY TWISS**  
Childhood  
Neurotherapeutics  
USC



**MAREK URBAN**  
Advanced Fiber  
Materials  
Clemson



**MICHAEL VAN  
TOOREN**  
Multifunctional  
Materials & Structures  
USC



**PAUL VENHOVENS**  
Automotive Systems  
Integration  
Clemson



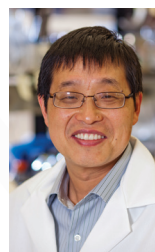
**RICHARD WEBB**  
Experimental  
Nanoscale Physics  
USC



**DELIA WEST**  
Technology Center  
to Enhance Healthful  
Lifestyles  
USC



**PATRICK WOSTER**  
Cancer Drug Discovery  
MUSC



**XUE ZHONG YU**  
Cancer Stem Cell  
Biology and Therapy  
MUSC

## SMARTSTATE® COUNCIL OF CHAIRS

*Dear Friends,*



I am honored to speak on behalf of the SmartState® Council of Chairs, a diverse group men and women who are experts in the fields of advanced materials and nanotechnology, automotive design and engineering, biomedical sciences and public health, information science, energy and alternative fuels, pharmaceuticals and drug development.

South Carolina is now home to 54 SmartState® Endowed Chairs, each chair holder specifically recruited from the top research universities in the nation to serve as catalysts in igniting and fueling South Carolina's Knowledge Economy. It is a mantle my colleagues and I are well prepared to wear. Many of the SmartState® Chairs brought with them existing multi-million dollar research grants and laboratories. Others have attracted tens of millions in funding from the federal government, private foundations and corporations, funding that fuels research, innovation, and educational and career opportunities for students and citizens of our state.

SmartState® Endowed Chairs have embraced groundbreaking partnerships, creating unprecedented synergy between South Carolina's research universities, business and healthcare communities that are creating new opportunities for our state. We are now a national leader in automotive manufacturing, health informatics, sustainable fuels, and other areas. We have attracted new companies with better jobs and good salaries. South Carolina has achieved its goal of a Knowledge Economy; it feels great!

We would like to thank the South Carolina General Assembly for creating the SmartState® Program. This unique program has elevated our state's research universities and has attracted the research stars you see on these pages. Success breeds success and the SmartState® Endowed Chairs look forward to continuing our momentum.

*Sue Levkoff*

Sue Levkoff  
Chair, Council of Chairs  
SmartState® Program



A portrait of a middle-aged man with a receding hairline, smiling at the camera. He is wearing a white lab coat over a striped shirt and a patterned tie. A stethoscope is draped around his neck. On the left side of his lab coat, the name 'SHLD' is embroidered. On the right side, 'MUSC Health' and 'CARDIOVASCULAR CENT' are embroidered. The background is a blurred clinical setting.

Sheldon E. Litwin, MD  
ALICIA SPAULDING-PAOLOZZI SMARTSTATE  
ENDOWED CHAIR IN CARDIOVASCULAR  
BIOMARKER DEVELOPMENT FOR DIAGNOSIS  
AND PREVENTION  
SMARTSTATE CENTER IN MOLECULAR  
PROTEOMICS IN CARDIOVASCULAR DISEASE



**“ Nearly 1 IN 3**  
South Carolinians\*  
**IS OBESE**, the 10th highest  
obesity rate in the nation.  
Reverse obesity and we  
**REVERSE MANY**  
**DEADLY DISEASES. ”**

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# ADDRESSING THE BATTLE OF THE BULGE

*In 1990, South Carolina's adult obesity rate was 12 percent.*

Thirty-five years later, that number has nearly tripled (32.1 percent), resulting in major health issues for the Palmetto State. South Carolina now ranks seventh in the nation for diabetes, eighth for hypertension, and has high rates of heart disease, arthritis and cancer.\*

Coming to the Medical University of South Carolina (MUSC) from Utah, which has the second lowest obesity rate in the nation, Sheldon E. Litwin, MD, was shocked at the difference in people in the Palmetto State. At the same time, the Spaulding-Paolozzi SmartState® Endowed Chair in Cardiovascular Biomarker Development for Diagnosis and Prevention was motivated to make a difference.

A self-described compulsive exerciser — he cycles, rows or works out at the gym three hours a day — Litwin's focus is heart disease. However, instead of treating heart attacks, he focuses on preventive cardiology.

“As cardiologists, we haven't dealt with obesity. About half of the patients with clear signs of congestive heart failure (CHF), have normal pumping capacity of the heart muscle, making them difficult to diagnose. I believe the main problem is very often obesity; excess weight places a burden on the heart, lungs and kidneys, ultimately leading to high pressures in the heart during diastole (when the heart fills with blood). This can cause fluid accumulation in the lungs, abdomen and extremities, making it difficult to breathe and move,” Litwin explained.

These patients also tend to suffer from sleep apnea, high blood pressure and diabetes. Added Litwin, “Currently there is no effective pharmacologic therapy for this syndrome, also known as heart failure with preserved ejection fraction (HFpEF). Weight loss may

be the obvious overlooked therapy.”

Litwin has launched Weight Loss as Therapy for Heart Failure, a 15-week lifestyle modification program at MUSC aimed at reversing participants' heart disease through weight loss and increased exercise. The plan is to enroll 50 people. “Lifestyle modification is hard. Most people ultimately regain the weight they lose through diet and exercise alone. If we prove that weight loss can safely improve the condition of patients with established heart failure, then we can begin to study whether weight loss medications or surgery can help sustain weight loss over time,” Litwin said.

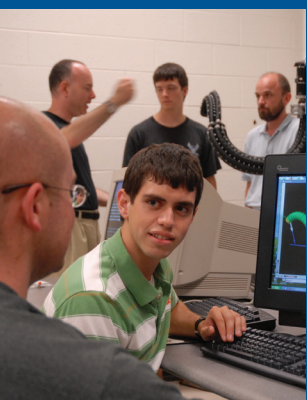
“If a person loses just **TEN PERCENT** of body weight, we see **SIGNIFICANT BENEFITS** to the cardiovascular system.”

Litwin is also starting a clinic for patients who have HFpEF, and is involved in several clinical trials evaluating novel approaches to this condition. He hopes to offer options to help patients and physicians who frequently struggle to treat this common but challenging condition.

Most of the HFpEF patients Litwin talks with are very interested in the weight loss project. “People are frustrated by their breathlessness and recognize the value of a different approach. Helping patients to manage obesity has not traditionally been a large part of a cardiologists practice. Today, I think it may be the most important thing we can do.”

“There is **NO ESTABLISHED TREATMENT** for about half the cases of congestive heart failure. **LOSING WEIGHT** may be an effective therapy.”





# IN CLOSING

*South Carolina's knowledge economy  
has only just begun.*

In preparing the 2014-2015 SmartState® Program annual report, we heard from many people who have had a hand in creating South Carolina's knowledge economy.

There was incredible pride, even a sense of wonder at the accomplishment. There was also a powerful reminder: a knowledge economy is not a destination, but an ongoing journey.

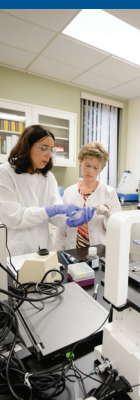
Today it seems the only thing faster than the speed of light is the speed of change. Keeping up with change requires non-stop observation, innovation and adjustment. There is no status quo.

South Carolina and the world will continue to depend on smart thinkers and do-ers to address the growing demands for sustainable energy, transportation and food sources; health care that meets the needs of individuals and entire populations; cyber security and security of the world at large.

South Carolina's SmartState® Program has proven itself up to the challenge.

“Knowledge has to be improved, challenged, and increased constantly, or it vanishes.”

— PETER DRUCKER



# SMARTSTATE® PROGRAM CONTACTS

## South Carolina Commission on Higher Education

### **Gary Glenn**

*Interim Executive Director  
and Director of Fiscal Affairs*  
803.737.2155  
gglenn@che.sc.gov

### **Dr. Argentini Anderson**

*Associate Director of Compliance  
and Special Projects & External Affairs*  
803.737.2276  
aanderson@che.sc.gov

### **Julie Carullo**

*Deputy Director  
and Director of External Affairs*  
803.737.2292  
jcarullo@che.sc.gov

### **Tanya Rogers**

*Program Coordinator  
External Affairs*  
803.737.2224  
trogers@che.sc.gov

## University Research

### **CLEMSON UNIVERSITY**

#### **Dr. Larry Dooley**

*Interim Vice President  
for Research*  
dooley@clemson.edu

#### **Catherine “Casey” Porto**

*Executive Director  
Clemson University Research  
Foundation*  
cporto@clemson.edu

### **MEDICAL UNIVERSITY OF SOUTH CAROLINA (MUSC)**

#### **Dr. Kathleen T. Brady**

*Interim Associate Provost for Research*  
bradyk@musc.edu

#### **Michael Rusnak**

*Director of Technology Transfer  
Executive Director, Foundation of University  
Research*  
rusnak@musc.edu

### **UNIVERSITY OF SOUTH CAROLINA**

#### **Dr. Harry J. Ploehn**

*Professor and Vice Provost and  
Director of Planning*  
ploehn@mailbox.sc.edu

#### **William Kirkland**

*Director  
Office of Economic Development*  
kirkla@mailbox.sc.edu

## University Media Relations

### **Cathy Sams**

*Clemson University  
Chief Public Affairs Officer*  
864.656.4233  
ctsams@clemson.edu

### **Healther M. Woolmine, MA**

*Media Relations Director*  
843.792.7669  
woolwinh@musc.edu

### **Wes Hickman**

*University of South Carolina  
Director, News &  
Internal Communications*  
803.777.3478  
whickman@mailbox.sc.edu

The SmartState® Program annual report is prepared annually for the South Carolina General Assembly and the South Carolina Budget and Control Board by the SmartState® Review Board and the South Carolina Commission on Higher Education in accordance with S.C. Code of Laws §2-75-10.

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South Carolina Commission on Higher Education  
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**SOUTH CAROLINA CENTERS  
OF ECONOMIC EXCELLENCE**

**FINANCIAL AND  
COMPLIANCE REPORT**

**JUNE 30, 2015**

**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
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YEAR ENDED JUNE 30, 2015**

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**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
REVIEW BOARD  
JUNE 30, 2015**

<b><u>NAME</u></b>	<b><u>POSITION</u></b>	<b><u>APPOINTMENT</u></b>
Regan Voit	Chair	Chair, Senate Finance Committee
Melvin C. Williams	Vice-Chair	President Pro Tempore of the Senate
Lisa Main	Secretary	Speaker of the House
Robert W. Pearce, Jr.	Member	Speaker of the House
Jason Premo	Member	Governor
Charles W. Garnett	Member	Governor
Karoly Kerekes	Member	Governor
Patrick Turner	Member	President Pro Tempore of the Senate
Roberta Bankhead Wood	Member	Chair, House Ways and Means Committee
James P. Clements	Ex-officio	President, Clemson Univ.
David J. Cole	Ex-officio	President, Medical Univ. of S.C.
Harris Pastides	Ex-officio	President, Univ. of S. C.





SmartState Program  
Management's Discussion and Analysis  
Period: Fiscal Year 2014-15

Management's Discussion and Analysis provides an overview of the SmartState program and data covering the fiscal year ended June 30, 2015. This discussion and analysis should be read in conjunction with the financial statement and accompanying notes. The financial statements have been prepared by an independent auditor (Derrick, Stubbs & Stith, LLP) in accordance with S.C. Code of Laws, as amended, Section 2-75-10.

**Overview of the SmartState Program**

In 2002, the South Carolina General Assembly passed the Research Centers of Economic Excellence (RCEE) Act. The legislation originally required appropriation of \$200 million through 2010<sup>1</sup> from the South Carolina Education Lottery to establish unique Centers of Economic Excellence at South Carolina's three senior research institutions: Clemson University, University of South Carolina (USC), and Medical University of South Carolina (MUSC). Each Center of Economic Excellence (Center) specializes in unique, knowledge-based economy research (in fields such as engineering, nanotechnology, biomedical science, and energy science) that promotes and creates enhanced economic opportunities for the state. In 2008, the General Assembly amended the RCEE Act to replace the \$200 million funding cap and the 2010 sunset date with a statutory guarantee of \$30 million in annual funding so long as (a) Lottery-supported scholarships have been fully funded, and (b) the SmartState Review Board has, by the end of the most previous fiscal year, awarded a minimum of 80% of overall appropriations since 2003.

The RCEE Act also created the SmartState Review Board, which provides program oversight. The Review Board is composed of 11 members: three appointed by the Governor; three by the President Pro Tempore of the Senate; three by the Speaker of the

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<sup>1</sup> The General Assembly appropriated \$30 million per year in the state budget for fiscal years 2003 through 2008. The General Assembly has appropriated no new funds for fiscal years 2009 through 2015.

House of Representatives; one by the Chair of the Senate Finance Committee; and one by the Chair of the House Ways & Means Committee. Membership terms are three years, and individuals may serve three total terms. Presidents of South Carolina's three research universities serve as ex-officio, non-voting members of the Review Board. Staff and operational support for the SmartState Program are provided by CHE.

The SmartState Review Board held its first meeting on October 17, 2002, at which it approved formal *Bylaws*. On December 5, 2002, the Review Board approved Program *Guidelines* and *Requests for Proposals Guidelines for 2002-2003*, which established a competitive, annual process whereby Centers of Economic Excellence are proposed by the research institutions and approved by the Review Board. The three-tier review process includes two rigorous scientific evaluations (a technical review and an onsite panel review), followed by the Review Board's analysis of the review findings and a formal vote on individual proposals. In 2008, the General Assembly amended the RCEE Act by encoding the technical and scientific review process for proposals.

Once a new Center is approved, an institution has 18 months in which to solicit non-state (private, federal, or municipal) investors to pledge dollar-for-dollar matching of a Center's total state award (between \$2 million to \$5 million). In February 2007, the SmartState Review Board approved a policy whereby an institution may apply for up to two six-month extensions beyond the 18-month pledge verification deadline. All matching pledges must be realized within 78 months of a Center's approval date. In February 2009, the SmartState Review Board approved a policy whereby an institution may apply for as many as two six-month extensions beyond the 78-month drawdown deadline.

State funds may only be drawn against perfected (eligible and received) non-state pledges. The majority of funds (all of the state funds plus no less than 30% of the non-state match) is placed in endowment, which may be used to pay the salaries or salary supplements of the world-class scientists (endowed chairs) specially recruited to lead each Center, as well as to pay for the purchase of specialized equipment, laboratory construction, other faculty, and research assistants. In 2008, the General Assembly amended the RCEE Act by codifying the use of a certain portion (determined by the SmartState Review Board) of non-state matching funds "to pay for initial operating costs" of Centers (S.C. 2-75-100).

On December 12, 2006, the SmartState Review Board convened a Cost Share Work Group. Representatives from all three research institutions, the Office of the State Treasurer, and CHE gathered to discuss accounting standards related to the RCEE Act. On February 26, 2007, the Review Board approved a Cost Share Accounting Policy which contains specific guidelines for claiming and valuing in-kind matches. In 2008, the General Assembly amended the RCEE Act to encode the use of cash equivalent and in-kind donations as valid non-state matches for the SmartState Program.

In 2010, the General Assembly amended the RCEE act to create a new type of SmartState award to be made in concert with the South Carolina Department of Commerce. One-quarter of the unallocated Centers of Excellence Matching Endowment funds were dedicated for funding such “SmartState Commerce Awards.” SmartState Commerce Awards may not individually exceed \$2 million and do not require the dollar-for-dollar, non-state match of standard SmartState awards. In place of the matching requirement, the Secretary of Commerce is required to certify that a “significant capital investment” has been made in the related research field of the proposed SmartState Commerce Award professorial endowment. These revisions became effective January 1, 2011. The SmartState Review Board issued an RFP for awards in FY 2011. However, at the request of the Department of Commerce, the awards for this component of the SmartState Program have not been made.

Over time, each research institution has developed concentrated SmartState focus areas. Clemson University’s core strengths lie in the area of automotive and transportation technology, advanced materials and biotechnology/biomedical sciences. USC’s Centers generally fall within three clusters: future fuels, biomedical sciences, and nanotechnology. MUSC’s strengths lie in the areas of neuroscience, cancer research, vascular disease, and health care quality and finance.

One hallmark of the SmartState Program is an almost unprecedented scientific collaboration at the academic level. More than one-third of the Centers are partnerships between and among state public institutions, including three four-year comprehensive teaching universities. Dr. John Schaefer, SmartState Endowed Chair at MUSC’s Clinical Effectiveness and Patient Safety Center has noted that such academic collaboration rarely exists—not even at Harvard or Yale. The lure of bonded research partnerships serves as an enticing recruiting tool to the renowned scientists required to lead each Center.



## **2014-15 SmartState Summary Information**

At the end of FY 2014-15, the program consists of 51 Centers with 85 approved SmartState Endowed Chairs of which 54 have been appointed to date. As envisioned by the General Assembly, the SmartState Program has become a successful boost to the state's knowledge-based economy. Of the \$197.6 million<sup>2</sup> in SmartState awards granted by the Board through the end of FY 2014-15, \$197.6 million in matching pledges have been committed by non-state sources. Of the committed pledges through FY 2014-15, \$195.2 million have been perfected and drawn down.

The table found on the following pages provides summary information on the Centers from FY 2002-03 through FY 2014-15.

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<sup>2</sup> To date, the SmartState Review Board has obligated \$17.6 million in accrued program interest for the awarding of additional proposals, as is permitted by statute. To date, the Review Board has used all of the \$17.6 million in accrued interest to fund proposals in the 2008-2009, 2009-2010 and 2012-2013 award cycles.



**Summary of Approved SmartState Program  
Centers of Economic Excellence by Fiscal (Funding) Year (2002-03 – 2014-15)**

<b>Funding Year 2002-2003</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Automotive Systems Integration	1	\$5 million
Clemson	Automotive Manufacturing	1	\$5 million
USC	Nanostructures	1	\$4 million
USC/MUSC	Brain Imaging	3 <sup>1</sup>	\$5 million
MUSC	Proteomics	2	\$4 million
MUSC	Neuroscience	2 <sup>2</sup>	\$3 million
MUSC/USC/CoC	Marine Genomics	2 <sup>3</sup>	\$4 million
<b>Total Awarded in 2002-2003</b>		<b>12</b>	<b>\$30 million</b>
<b>Funding Year 2003-2004</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Automotive Design & Development	1	\$5 million
Clemson	Electronic Systems Integration	1	\$3 million
Clemson	Photonic Materials	1	\$5 million
USC	Polymer Nanocomposites	1	\$3.5 million
USC	Innovation and Commercialization	1 <sup>4</sup>	\$2.5 million
MUSC/Clemson/USC	Regenerative Medicine	3	\$5 million
MUSC/USC	Translational Cancer Therapeutics	2	\$5 million
<b>Total Awarded in 2003-2004</b>		<b>10</b>	<b>\$29 million</b>
<b>Funding Year 2004-2005</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Restoration [WITHDRAWN]	—	[\$3 million]
Clemson	Electron Imaging [WITHDRAWN]	—	[\$5 million]
USC	Catalysis for Renewable Fuels	1	\$3 million
USC	Innovation and Commercialization	[See 03-04]	\$2.5 million
USC/Coastal Carolina	Tourism & Economic Development	1	\$2 million
MUSC	Gastrointestinal Cancer Diagnostics	2 <sup>5</sup>	\$5 million
MUSC/USC	Cancer Drug Discovery	4	\$5 million
MUSC	Vision Science	2 <sup>6</sup>	\$4.5 million
<b>Total Awarded in 2004-2005</b>		<b>10</b>	<b>\$22 million</b>

<sup>1</sup>Revised to three chairs by act of the SmartState Review Board on January 12, 2009.

<sup>2</sup>Revised to two chairs by act of the SmartState Review Board on February 9, 2015.

<sup>3</sup>Revised to two chairs by act of the SmartState Review Board on February 23, 2010.

<sup>4</sup>The The Hydrogen Economy Center was approved during 2003-2004. Funding for one half of this Center was provided in 2003-04, the other half in 2004-2005. In 2014, the name changed to the SmartState Center for Innovation and Commercialization and revised to one chair.

<sup>5</sup> Increased from one to two endowed chairs by act of the SmartState Review Board on September 8, 2008.

<sup>6</sup>Revised to two chairs and relinquished USC as a collaborative partner by act of the SmartState Review Board on February 11, 2014.

<b>Funding Year 2005-2006</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Supply Chain Optimization & Logistics	1	\$2 million
Clemson	Urban Ecology and Restoration	1	\$2 million
Clemson	Advanced Fiber-Based Materials	1	\$4 million
Clemson	Molecular Nutrition [WITHDRAWN]	—	[\$2 million]
USC	Solid Oxide Fuel Cells	1	\$3 million
USC/MUSC	Childhood Neurotherapeutics	3	\$5 million
MUSC	Molecular Proteomics in Cardiovascular Disease & Prevention	2	\$5 million
MUSC/USC	Clinical Effectiveness & Patient Safety <sup>7</sup>	3	\$5 million
<b>Total Awarded in 2005-2006</b>		<b>12</b>	<b>\$26 million</b>
<b>Funding Year 2006-2007</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson/MUSC	Health Facilities Design & Testing <sup>8</sup>	2	\$2 million
USC	Rehabilitation and Reconstruction Science	1	\$5 million
USC	Strategic Approaches to the Generation of Electricity	1	\$5 million
USC/MUSC/Clemson	Healthcare Quality	2	\$5 million
USC/Clemson	Senior SMART <sup>TM</sup> Center <sup>9</sup>	3	\$5 million
MUSC	Tobacco-Related Malignancy	2	\$5 million
MUSC/USC	Stroke	3	\$5 million
<b>Total Awarded in 2006-2007</b>		<b>14</b>	<b>\$32 million</b>

<sup>7</sup>On September 9, 2008, the SmartState Review Board approved a revision to this proposal which relinquished Clemson University as a collaborative partner and transferred the Chair at Clemson to MUSC.

<sup>8</sup>The state award total for this Center was revised from \$5 million to \$2 million by the SmartState Review Board on June 11, 2012.

<sup>9</sup>The SeniorSMART Center of Economic Excellence was approved in 2007-2008. Funding was provided from 2006-2007 dollars.



**SC Centers of Economic Excellence Funded Proposals (continued)**

<b>Funding Year 2007-2008</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Optoelectronics	1	\$2 million
Clemson	CyberInstitute	1	\$2 million
USC	Environmental Nanoscience and Risk	1	\$3 million
USC	Nuclear Science and Energy	1	\$3 million
MUSC	Renal Disease Biomarker	2	\$5 million
MUSC/Clemson	Cancer Stem Cell Biology	2	\$5 million
MUSC/USC/Clemson	Advanced Tissue Biofabrication	3	\$5 million
MUSC/USC/SCSU	Cancer Disparities <sup>10</sup>	3	\$3.6 million
MUSC/USC	Medication Safety & Efficacy <sup>11</sup>	1	\$2 million
<b>Total Awarded in 2007-2008</b>		<b>15</b>	<b>\$30.6 million</b>
<b>Funding Year 2008-2009</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Tissue Systems Characterization [WITHDRAWN]	—	[\$3 million]
USC	General Atomics Center for Development of Transformational Nuclear Technologies	1	\$3 million
USC/MUSC	Healthful Lifestyles <sup>12</sup>	2	\$3 million
MUSC	Lipidomics, Pathobiology and Therapy	2	\$5 million
<b>Total Awarded in 2008-2009</b>		<b>5</b>	<b>\$11 million</b>
<b>Funding Year 2009-2010</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Sustainable Development	1	\$4 million
USC	Data Analysis	1	\$2 million
MUSC	Inflammation and Fibrosis Research	2	\$5 million
<b>Total Awarded in 2009-2010</b>		<b>4</b>	<b>\$11 million</b>

<sup>10</sup>The Cancer Disparities Center of Economic Excellence was approved in 2008-2009. Funding was provided from 2007-2008 dollars.

<sup>11</sup>The Medication Safety & Efficacy Center was approved in 2008-2009. Funding was provided from 2007-2008 dollars.

<sup>12</sup>The Healthful Lifestyles Center of Economic Excellence was approved in 2009-2010 with funding from 2008-2009 dollars.

**SC Centers of Economic Excellence Funded Proposals (continued)**

<b>Funding Year 2012-2013</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Smart Grid Technology	1	\$2 million
USC	Multifunctional Materials and Structures	1	\$2 million
MUSC	Translational Biomedical Informatics	1	\$2 million
<b>Total Awarded in 2012-2013</b>		<b>3</b>	<b>\$6 million</b>

<b>Program Totals<sup>13</sup></b>	
<b>TOTAL LOTTERY APPROPRIATIONS (2003-2008)</b>	<b>\$180 million</b>
<b>ACCRUED PROGRAM INTEREST USED FOR ADDITIONAL AWARDS *</b> * As permitted by S.C. 2-75-30(A).	<b>\$17.6 million</b>
<b>TOTAL FUNDS AWARDED (2003-2013)</b>	<b>\$197.6 million</b>

<b>Research Institution Totals<sup>14</sup></b>				
<b>Institution</b>	<b>Centers Awarded</b>	<b>Chairs Created</b>	<b>Chairs Appointed (Remaining to be Appointed)</b>	<b>State Funds Drawn</b>
Clemson University	13	16	7 (7)	\$43,000,000
University of South Carolina	18	28	21 (7)	\$65,875,037
Medical University of South Carolina	20	41	24 (17)	\$86,351,057
<b>TOTALS</b>	<b>51</b>	<b>85</b>	<b>54 (31)</b>	<b>\$195,226,094</b>

<sup>13</sup>Program totals are as of fiscal year end June 30, 2015.

<sup>14</sup>For Research Institution Totals, Centers Awarded and State Funds Drawn for each institution are tallied on the fiscal agent in cases of joint proposals. Chairs are tallied based on the assigned institution as of November 2015. For updated information on Centers and program totals, contact CHE or see [www.smartstatesc.org](http://www.smartstatesc.org).

## INDEPENDENT AUDITOR'S REPORT

To the Review Board  
South Carolina Centers of Economic Excellence  
Columbia, South Carolina

We have audited the statements of program revenues and expenditures of the South Carolina Centers of Economic Excellence (the Program) for the year ended June 30, 2015, as listed in the index. These financial statements are the responsibility of the Program's management. Our responsibility is to express an opinion on these financial statements based on our audit.

### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### Auditor's Responsibility

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial presentation. We believe that our audit provides a reasonable basis for our opinion.

### Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the program revenues and expenditures of the South Carolina Centers of Economic Excellence for the year ended June 30, 2015, in conformity with accounting principles generally accepted in the United States of America.

### Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued a report dated October 30, 2015, on our consideration of the Program's internal control over financial reporting and our tests of its compliance with certain provisions of laws, regulations, contracts and grants. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be read in conjunction with this report in considering the results of our audit.



**Other Matter**

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis on pages 2 through 9 be presented to supplement the basic financial statements. Such information, although not a required part of the basic financial statements, is required by the Governmental Accounting Standards Board, which considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

*Perich, Stubbs & Stith, LLP*

October 30, 2015

**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES - CONSOLIDATED SUMMARY  
YEAR ENDING JUNE 30, 2015**

	Clemson University				Medical University of South Carolina					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,701,380	\$ -	\$ -	\$ -	\$ 2,701,380
Non-state matching funds	-	-	500	-	500	-	1,045,075	172,229	1,115	1,218,419
<b>Total contribution revenue</b>	-	-	500	-	500	2,701,380	1,045,075	172,229	1,115	3,919,799
Investment Income										
Realized gain (loss)	-	-	-	2,923,045	2,923,045	-	-	-	5,472,451	5,472,451
Unrealized gain (loss)	-	-	-	505,397	505,397	-	-	-	(1,210,026)	(1,210,026)
Endowment income	-	-	-	261,204	261,204	-	-	-	1,479,698	1,479,698
<b>Total investment income (loss)</b>	-	-	-	3,689,646	3,689,646	-	-	-	5,742,123	5,742,123
<b>Total revenue</b>	-	-	500	3,689,646	3,690,146	2,701,380	1,045,075	172,229	5,743,238	9,661,922
Expenditures										
Personal services	-	-	-	376,540	376,540	-	-	-	1,584,089	1,584,089
Fringe	-	-	-	99,847	99,847	-	-	-	568,007	568,007
Travel	-	-	-	53,622	53,622	-	-	-	111,085	111,085
Supplies	-	-	-	29,430	29,430	-	-	-	332,575	332,575
Contractual	-	-	-	-	-	-	-	-	108,428	108,428
Tuition assistance	-	-	-	71,900	71,900	-	-	-	-	-
Fixed charges	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	-	-	-	-	186,971	1,312,173	1,499,144
Other	-	-	25	479,697	479,722	-	-	150,128	891,507	1,041,635
Facilities	-	-	-	-	-	-	-	180,000	89,108	269,108
Equipment	-	-	59,271	84,411	143,682	-	-	38,750	518,723	557,473
<b>Total expenditures</b>	-	-	59,296	1,195,447	1,254,743	-	-	555,849	5,515,695	6,071,544
Program net income (loss)	-	-	(58,796)	2,494,199	2,435,403	2,701,380	1,045,075	(383,620)	227,543	3,590,378
Transfers	-	10,069	-	-	10,069	-	-	(2,269,361)	2,274,356	4,995
Prior Period Adjustment	-	-	-	-	-	337,177	-	-	-	337,177
Cumulative Program Net Income										
Beginning	43,000,000	35,477,454	247,862	25,558,030	104,283,346	83,312,500	33,226,354	14,375,827	28,570,526	159,485,207
<b>Ending</b>	\$ 43,000,000	\$ 35,487,523	\$ 189,066	\$ 28,052,229	\$ 106,728,818	\$ 86,351,057	\$ 34,271,429	\$ 11,722,846	\$ 31,072,425	\$ 163,417,757

See notes to financial statements.

**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES - CONSOLIDATED SUMMARY  
YEAR ENDING JUNE 30, 2015**

	University of South Carolina				Total - Consolidated Summary					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ 4,444,521	\$ -	\$ -	\$ -	\$ 4,444,521	\$ 7,145,901	\$ -	\$ -	\$ -	\$ 7,145,901
Non-state matching funds	-	1,191,050	15,580	22,550	1,229,180	-	2,236,125	188,309	23,665	2,448,099
<b>Total contribution revenue</b>	<b>4,444,521</b>	<b>1,191,050</b>	<b>15,580</b>	<b>22,550</b>	<b>5,673,701</b>	<b>7,145,901</b>	<b>2,236,125</b>	<b>188,309</b>	<b>23,665</b>	<b>9,594,000</b>
Investment Income										
Realized gain (loss)	-	-	-	1,726,217	1,726,217	-	-	-	10,121,713	10,121,713
Unrealized gain (loss)	-	-	-	(758,666)	(758,666)	-	-	-	(1,463,295)	(1,463,295)
Endowment income	-	-	3,032	3,416,017	3,419,049	-	-	3,032	5,156,919	5,159,951
<b>Total investment income (loss)</b>	<b>-</b>	<b>-</b>	<b>3,032</b>	<b>4,383,568</b>	<b>4,386,600</b>	<b>-</b>	<b>-</b>	<b>3,032</b>	<b>13,815,337</b>	<b>13,818,369</b>
<b>Total revenue</b>	<b>4,444,521</b>	<b>1,191,050</b>	<b>18,612</b>	<b>4,406,118</b>	<b>10,060,301</b>	<b>7,145,901</b>	<b>2,236,125</b>	<b>191,341</b>	<b>13,839,002</b>	<b>23,412,369</b>
Expenditures										
Personal services	-	-	45,282	1,648,452	1,693,734	-	-	45,282	3,609,081	3,654,363
Fringe	-	-	5,587	262,985	268,572	-	-	5,587	930,839	936,426
Travel	-	-	12,237	127,317	139,554	-	-	12,237	292,024	304,261
Supplies	-	-	30,345	152,902	183,247	-	-	30,345	514,907	545,252
Contractual	-	-	79,720	479,099	558,819	-	-	79,720	587,527	667,247
Tuition assistance	-	-	-	-	-	-	-	-	71,900	71,900
Fixed charges	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	415,458	415,458	-	-	186,971	1,727,631	1,914,602
Other	-	-	25,748	274,507	300,255	-	-	175,901	1,645,711	1,821,612
Facilities	-	-	-	-	-	-	-	180,000	89,108	269,108
Equipment	-	-	16,360	221,960	238,320	-	-	114,381	825,094	939,475
<b>Total expenditures</b>	<b>-</b>	<b>-</b>	<b>215,279</b>	<b>3,582,680</b>	<b>3,797,959</b>	<b>-</b>	<b>-</b>	<b>830,424</b>	<b>10,293,822</b>	<b>11,124,246</b>
Program net income (loss)	4,444,521	1,191,050	(196,667)	823,438	6,262,342	7,145,901	2,236,125	(639,083)	3,545,180	12,288,123
Transfers	-	(1,500,000)	1,374,672	44,143	(81,185)	-	(1,489,931)	(894,689)	2,318,499	(66,121)
Prior Period Adjustment	-	-	-	-	-	337,177	-	-	-	337,177
Cumulative Program Net Income Beginning	62,055,479	30,175,844	775,404	14,109,581	107,116,308	188,367,979	98,879,652	15,399,093	68,238,137	370,884,861
<b>Ending</b>	<b>\$ 66,500,000</b>	<b>\$ 29,866,894</b>	<b>\$ 1,953,409</b>	<b>\$ 14,977,162</b>	<b>\$ 113,297,465</b>	<b>\$ 195,851,057</b>	<b>\$ 99,625,846</b>	<b>\$ 13,865,321</b>	<b>\$ 74,101,816</b>	<b>\$ 383,444,040</b>

See notes to financial statements.



SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
CLEMSON UNIVERSITY  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Automotive Design and Development				Automotive Manufacturing Integration			
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings
Contribution Revenue								
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	-
<b>Total contribution revenue</b>	-	-	-	-	-	-	-	-
Investment Income								
Realized gain (loss)	-	-	-	297,748	-	-	-	357,635
Unrealized gain (loss)	-	-	-	32,641	-	-	-	124,406
Endowment income	-	-	-	10,253	-	-	-	13,057
<b>Total investment income (loss)</b>	-	-	-	340,642	-	-	-	495,098
<b>Total revenue</b>	-	-	-	340,642	-	-	-	495,098
Expenditures								
Personal services	-	-	-	62,337	-	-	-	52,343
Fringe	-	-	-	11,817	-	-	-	18,137
Travel	-	-	-	23,183	-	-	-	3,039
Supplies	-	-	-	309	-	-	-	3,708
Tuition assistance	-	-	-	12,757	-	-	-	35,154
Administrative fees	-	-	-	-	-	-	-	-
Other	-	-	-	86,601	-	-	-	85,774
Facilities	-	-	-	-	-	-	-	-
Equipment	-	-	-	48,377	-	-	-	2,000
<b>Total expenses</b>	-	-	-	245,381	-	-	-	200,155
Program net income (loss)	-	-	-	95,261	-	-	-	294,943
Transfers	-	-	-	-	-	-	-	-
Cumulative Program Net Income								
Beginning	5,000,000	2,845,991	-	2,501,783	5,000,000	5,000,000	-	3,039,907
<b>Ending</b>	<b>\$ 5,000,000</b>	<b>\$ 2,845,991</b>	<b>\$ -</b>	<b>\$ 2,597,044</b>	<b>\$ 5,000,000</b>	<b>\$ 5,000,000</b>	<b>\$ -</b>	<b>\$ 3,334,850</b>
								<b>\$ 13,334,850</b>

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
CLEMSON UNIVERSITY  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
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	Automotive Systems Integration				Optical Materials					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	-	-	-
<b>Total contribution revenue</b>	-	-	-	-	-	-	-	-	-	-
Investment Income										
Realized gain (loss)	-	-	-	383,163	383,163	-	-	-	306,258	306,258
Unrealized gain (loss)	-	-	-	137,665	137,665	-	-	-	4,329	4,329
Endowment income	-	-	-	12,079	12,079	-	-	-	16,804	16,804
<b>Total investment income (loss)</b>	-	-	-	532,907	532,907	-	-	-	327,391	327,391
<b>Total revenue</b>	-	-	-	532,907	532,907	-	-	-	327,391	327,391
Expenditures										
Personal services	-	-	-	17,295	17,295	-	-	-	-	-
Fringe	-	-	-	6,059	6,059	-	-	-	-	-
Travel	-	-	-	4,970	4,970	-	-	-	-	-
Supplies	-	-	-	23,671	23,671	-	-	-	-	-
Tuition assistance	-	-	-	14,778	14,778	-	-	-	-	-
Administrative fees	-	-	-	-	-	-	-	-	141	141
Other	-	-	-	103,997	103,997	-	-	-	-	-
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	21,973	21,973	-	-	-	-	-
<b>Total expenses</b>	-	-	-	192,743	192,743	-	-	-	141	141
Program net income (loss)	-	-	-	340,164	340,164	-	-	-	327,250	327,250
Transfers	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income										
Beginning	5,000,000	5,000,000	114,921	3,884,930	13,999,851	5,000,000	3,050,852	14,384	3,138,175	11,203,411
<b>Ending</b>	<b>\$ 5,000,000</b>	<b>\$ 5,000,000</b>	<b>\$ 114,921</b>	<b>\$ 4,225,094</b>	<b>\$ 14,340,015</b>	<b>\$ 5,000,000</b>	<b>\$ 3,050,852</b>	<b>\$ 14,384</b>	<b>\$ 3,465,425</b>	<b>\$ 11,530,661</b>

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
CLEMSON UNIVERSITY  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Vehicle Electronic Systems				Supply Chain Optimization and Logistics					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	-	-	-
Total contribution revenue	-	-	-	-	-	-	-	-	-	-
Investment Income										
Realized gain (loss)	-	-	-	189,173	189,173	-	-	-	142,032	142,032
Unrealized gain (loss)	-	-	-	24,908	24,908	-	-	-	51,184	51,184
Endowment income	-	-	-	9,236	9,236	-	-	-	10,266	10,266
Total investment income (loss)	-	-	-	223,317	223,317	-	-	-	203,482	203,482
Total revenue	-	-	-	223,317	223,317	-	-	-	203,482	203,482
Expenditures										
Personal services	-	-	-	7,617	7,617	-	-	-	100,540	100,540
Fringe	-	-	-	1,565	1,565	-	-	-	26,016	26,016
Travel	-	-	-	3,006	3,006	-	-	-	13,612	13,612
Supplies	-	-	-	147	147	-	-	-	923	923
Tuition assistance	-	-	-	1,345	1,345	-	-	-	3,663	3,663
Administrative fees	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	79,135	79,135	-	-	-	6,739	6,739
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	-	-	-	-	-	2,591	2,591
Total expenses	-	-	-	92,815	92,815	-	-	-	154,084	154,084
Program net income (loss)	-	-	-	130,502	130,502	-	-	-	49,398	49,398
Transfers	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income										
Beginning	3,000,000	2,000,000	-	1,605,277	6,605,277	2,000,000	2,000,000	-	1,163,878	5,163,878
Ending	\$ 3,000,000	\$ 2,000,000	\$ -	\$ 1,735,779	\$ 6,735,779	\$ 2,000,000	\$ 2,000,000	\$ -	\$ 1,213,276	\$ 5,213,276

See notes to financial statements.



SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
CLEMSON UNIVERSITY  
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	Urban Ecology and Restoration				Advanced Fiber-Based Materials					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	500	-	500
Total contribution revenue	-	-	-	-	-	-	-	500	-	500
Investment Income										
Realized gain (loss)	-	-	-	142,741	142,741	-	-	-	269,420	269,420
Unrealized gain (loss)	-	-	-	55,805	55,805	-	-	-	73,756	73,756
Endowment income	-	-	-	11,213	11,213	-	-	-	22,167	22,167
Total investment income (loss)	-	-	-	209,759	209,759	-	-	-	365,343	365,343
Total revenue	-	-	-	209,759	209,759	-	-	500	365,343	365,843
Expenditures										
Personal services	-	-	-	-	-	-	-	-	79,027	79,027
Fringe	-	-	-	-	-	-	-	-	19,110	19,110
Travel	-	-	-	-	-	-	-	-	-	-
Supplies	-	-	-	-	-	-	-	-	-	-
Tuition assistance	-	-	-	-	-	-	-	-	4,203	4,203
Administrative fees	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	25	9,982	10,007
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	-	-	-	-	-	-	-
Total expenses	-	-	-	-	-	-	-	25	112,322	112,347
Program net income (loss)	-	-	-	209,759	209,759	-	-	475	253,021	253,496
Transfers	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income										
Beginning	2,000,000	2,000,000	-	1,140,105	5,140,105	4,000,000	3,482,500	59,286	2,642,440	10,184,226
Ending	\$ 2,000,000	\$ 2,000,000	\$ -	\$ 1,349,864	\$ 5,349,864	\$ 4,000,000	\$ 3,482,500	\$ 59,761	\$ 2,895,461	\$ 10,437,722

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
CLEMSON UNIVERSITY  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
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	Health Facilities Design and Testing				Optoelectronics			
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings
Contribution Revenue								
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	-
<b>Total contribution revenue</b>	-	-	-	-	-	-	-	-
Investment Income								
Realized gain (loss)	-	-	-	198,756	-	-	-	143,353
Unrealized gain (loss)	-	-	-	(118,187)	-	-	-	57,324
Endowment income	-	-	-	15,963	-	-	-	14,050
<b>Total investment income (loss)</b>	-	-	-	96,532	-	-	-	214,727
<b>Total revenue</b>	-	-	-	96,532	-	-	-	214,727
Expenditures								
Personal services	-	-	-	43,847	-	-	-	13,534
Fringe	-	-	-	14,103	-	-	-	3,040
Travel	-	-	-	2,578	-	-	-	-
Supplies	-	-	-	214	-	-	-	458
Tuition assistance	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	-	-	-	-	-
Other	-	-	-	82,256	-	-	-	20,393
Facilities	-	-	-	-	-	-	-	-
Equipment	-	-	-	5,407	-	-	-	4,063
<b>Total expenses</b>	-	-	-	148,405	-	-	-	41,488
Program net income (loss)	-	-	-	(51,873)	-	-	-	173,239
Transfers	-	-	-	-	-	(100)	-	(100)
Cumulative Program Net Income								
Beginning	2,000,000	2,000,000	-	1,954,681	2,000,000	2,006,899	-	1,380,514
<b>Ending</b>	<b>\$ 2,000,000</b>	<b>\$ 2,000,000</b>	<b>\$ -</b>	<b>\$ 1,902,808</b>	<b>\$ 2,000,000</b>	<b>\$ 2,006,799</b>	<b>\$ -</b>	<b>\$ 1,553,753</b>
								<b>\$ 5,560,552</b>

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
CLEMSON UNIVERSITY  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
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	Cyber-Institute			Sustainable Development			
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue							
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-
<b>Total contribution revenue</b>	-	-	-	-	-	-	-
Investment Income							
Realized gain (loss)	-	-	-	116,580	-	262,295	262,295
Unrealized gain (loss)	-	-	-	3,763	-	47,543	47,543
Endowment income	-	-	-	12,966	-	42,630	42,630
<b>Total investment income (loss)</b>	-	-	-	133,309	-	352,468	352,468
<b>Total revenue</b>	-	-	-	133,309	-	352,468	352,468
Expenditures							
Personal services	-	-	-	-	-	-	-
Fringe	-	-	-	-	-	-	-
Travel	-	-	-	-	-	3,234	3,234
Supplies	-	-	-	-	-	-	-
Tuition assistance	-	-	-	-	-	-	-
Administrative fees	-	-	-	-	-	-	-
Other	-	-	-	-	-	4,679	4,679
Facilities	-	-	-	-	-	-	-
Equipment	-	-	59,271	-	-	-	-
<b>Total expenses</b>	-	-	59,271	-	-	7,913	7,913
Program net income (loss)	-	-	(59,271)	133,309	-	344,555	344,555
Transfers	-	10,169	-	-	-	-	-
Cumulative Program Net Income							
Beginning	2,000,000	1,079,754	59,271	870,099	-	2,168,746	9,180,204
<b>Ending</b>	<b>\$ 2,000,000</b>	<b>\$ 1,089,923</b>	<b>\$ -</b>	<b>\$ 1,003,408</b>	<b>\$ 3,011,458</b>	<b>\$ 2,513,301</b>	<b>\$ 9,524,759</b>

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
CLEMSON UNIVERSITY  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Duke Energy Smart Grid				Total - Clemson University					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	500	-	500
Total contribution revenue	-	-	-	-	-	-	-	500	-	500
Investment Income										
Realized gain (loss)	-	-	-	113,891	113,891	-	-	-	2,923,045	2,923,045
Unrealized gain (loss)	-	-	-	10,260	10,260	-	-	-	505,397	505,397
Endowment income	-	-	-	70,520	70,520	-	-	-	261,204	261,204
Total investment income (loss)	-	-	-	194,671	194,671	-	-	-	3,689,646	3,689,646
Total revenue	-	-	-	194,671	194,671	-	-	500	3,689,646	3,690,146
Expenditures										
Personal services	-	-	-	-	-	-	-	-	376,540	376,540
Fringe	-	-	-	-	-	-	-	-	99,847	99,847
Travel	-	-	-	-	-	-	-	-	53,622	53,622
Supplies	-	-	-	-	-	-	-	-	29,430	29,430
Tuition assistance	-	-	-	-	-	-	-	-	71,900	71,900
Administrative fees	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	25	479,697	479,722
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	-	-	-	-	59,271	84,411	143,682
Total expenses	-	-	-	-	-	-	-	59,296	1,195,447	1,254,743
Program net income (loss)	-	-	-	194,671	194,671	-	-	(58,796)	2,494,199	2,435,403
Transfers	-	-	-	-	-	-	10,069	-	-	10,069
Cumulative Program Net Income										
Beginning	2,000,000	2,000,000	-	67,495	4,067,495	43,000,000	35,477,454	247,862	25,558,030	104,283,346
Ending	\$ 2,000,000	\$ 2,000,000	\$ -	\$ 262,166	\$ 4,262,166	\$ 43,000,000	\$ 35,487,523	\$ 189,066	\$ 28,052,229	\$ 106,728,818

See notes to financial statements.



**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
MEDICAL UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015**

	Proteomics				Neurosciences					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$	-	\$	-	\$	\$	-	\$	-	\$
Non-state matching funds		-	-	-	-	-	-	-	-	-
Total contribution revenue		-	-	-	-	-	-	-	-	-
Investment Income										
Realized gain (loss)	-	-	-	248,465	248,465	-	-	-	189,384	189,384
Unrealized gain (loss)	-	-	-	(66,383)	(66,383)	-	-	-	(48,865)	(48,865)
Endowment income	-	-	-	69,304	69,304	-	-	-	52,610	52,610
Total investment income (loss)	-	-	-	251,386	251,386	-	-	-	193,129	193,129
Total revenue	-	-	-	251,386	251,386	-	-	-	193,129	193,129
Expenditures										
Personal services	-	-	-	112,320	112,320	-	-	-	43,182	43,182
Fringe	-	-	-	-	-	-	-	-	14,855	14,855
Travel	-	-	-	9,825	9,825	-	-	-	1,042	1,042
Supplies	-	-	-	-	-	-	-	-	1,033	1,033
Contractual	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	64,188	64,188	-	-	-	48,766	48,766
Other	-	-	-	87,227	87,227	-	-	128	39,520	39,648
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	46,266	46,266	-	-	-	-	-
Total expenditures	-	-	-	319,826	319,826	-	-	128	148,398	148,526
Program net income (loss)	-	-	-	(68,440)	(68,440)	-	-	(128)	44,731	44,603
Transfers	-	-	(131,691)	131,691	-	-	-	(97,766)	97,766	-
Prior Period Adjustment	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Beginning	4,000,000	1,254,266	791,789	1,450,905	7,496,960	3,000,000	900,350	868,742	1,133,027	5,902,119
Ending	\$ 4,000,000	\$ 1,254,266	\$ 660,098	\$ 1,514,156	\$ 7,428,520	\$ 3,000,000	\$ 900,350	\$ 770,848	\$ 1,275,524	\$ 5,946,722

See notes to financial statements.

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	Marine Genomics				Regenerative Medicine					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$	-	\$	-	\$	-	\$	-	\$	\$
Non-state matching funds		-	-	-	-	-	-	-	-	-
Total contribution revenue		-	-	-	-	-	-	-	-	-
Investment Income										
Realized gain (loss)	-	-	-	173,925	173,925	-	-	-	305,444	305,444
Unrealized gain (loss)	-	-	-	(46,188)	(46,188)	-	-	-	154,536	154,536
Endowment income	-	-	-	48,365	48,365	-	-	-	42,709	42,709
Total investment income (loss)	-	-	-	176,102	176,102	-	-	-	502,689	502,689
Total revenue	-	-	-	176,102	176,102	-	-	-	502,689	502,689
Expenditures										
Personal services	-	-	-	155,166	155,166	-	-	-	481,267	481,267
Fringe	-	-	-	54,154	54,154	-	-	-	6,713	6,713
Travel	-	-	-	23,637	23,637	-	-	-	17,080	17,080
Supplies	-	-	-	16,081	16,081	-	-	-	87,368	87,368
Contractual	-	-	-	-	-	-	-	-	3,535	3,535
Administrative fees	-	-	-	52,870	52,870	-	-	119,843	61,081	180,924
Other	-	-	-	17,510	17,510	-	-	-	31,815	31,815
Facilities	-	-	-	-	-	-	-	-	1,920	1,920
Equipment	-	-	-	-	-	-	-	-	151,318	151,318
Total expenditures	-	-	-	319,418	319,418	-	-	119,843	842,097	961,940
Program net income (loss)	-	-	-	(143,316)	(143,316)	-	-	(119,843)	(339,408)	(459,251)
Transfers	-	-	(253,007)	253,007	-	-	-	(647,620)	647,620	-
Prior Period Adjustment	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Beginning	4,000,000	1,500,000	253,007	1,614,489	7,367,496	5,000,000	2,000,000	926,571	1,872,697	9,799,268
Ending	\$ 4,000,000	\$ 1,500,000	\$ -	\$ 1,724,180	\$ 7,224,180	\$ 5,000,000	\$ 2,000,000	\$ 159,108	\$ 2,180,909	\$ 9,340,017

See notes to financial statements.

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	Translational Cancer Therapeutics				Drug Discovery in Cancer					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$	-	\$	-	\$	-	\$	-	\$	\$
Non-state matching funds		-	-	-	-	-	-	-	-	-
Total contribution revenue		-	-	-	-	-	-	-	-	-
Investment Income										
Realized gain (loss)	-	-	-	335,169	335,169	-	-	-	309,163	309,163
Unrealized gain (loss)	-	-	-	(89,274)	(89,274)	-	-	-	(82,447)	(82,447)
Endowment income	-	-	-	93,436	93,436	-	-	-	86,744	86,744
Total investment income (loss)	-	-	-	339,331	339,331	-	-	-	313,460	313,460
Total revenue	-	-	-	339,331	339,331	-	-	-	313,460	313,460
Expenditures										
Personal services	-	-	-	187,717	187,717	-	-	-	93,595	93,595
Fringe	-	-	-	92,492	92,492	-	-	-	32,197	32,197
Travel	-	-	-	7,979	7,979	-	-	-	-	-
Supplies	-	-	-	42,825	42,825	-	-	-	13,534	13,534
Contractual	-	-	-	9,655	9,655	-	-	-	6,319	6,319
Administrative fees	-	-	-	-	-	-	-	-	79,809	79,809
Other	-	-	-	29,720	29,720	-	-	-	7,513	7,513
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	86,542	86,542	-	-	-	-	-
Total expenditures	-	-	-	456,930	456,930	-	-	-	232,967	232,967
Program net income (loss)	-	-	-	(117,599)	(117,599)	-	-	-	80,493	80,493
Transfers	-	-	-	-	-	-	-	(215,219)	215,219	-
Prior Period Adjustment	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Beginning	5,000,000	1,998,095	-	1,964,213	8,962,308	5,000,000	1,604,510	215,219	1,502,750	8,322,479
Ending	\$ 5,000,000	\$ 1,998,095	\$ -	\$ 1,846,614	\$ 8,844,709	\$ 5,000,000	\$ 1,604,510	\$ -	\$ 1,798,462	\$ 8,402,972

See notes to financial statements.

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	Gastrointestinal Cancer Diagnostics				Vision Science					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	5,000	-	5,000
<b>Total contribution revenue</b>	-	-	-	-	-	-	-	5,000	-	5,000
Investment Income										
Realized gain (loss)	-	-	-	332,042	332,042	-	-	-	294,593	294,593
Unrealized gain (loss)	-	-	-	(86,423)	(86,423)	-	-	-	(77,066)	(77,066)
Endowment income	-	-	-	92,306	92,306	-	-	-	81,928	81,928
<b>Total investment income (loss)</b>	-	-	-	337,925	337,925	-	-	-	299,455	299,455
<b>Total revenue</b>	-	-	-	337,925	337,925	-	-	5,000	299,455	304,455
Expenditures										
Personal services	-	-	-	113,742	113,742	-	-	-	-	-
Fringe	-	-	-	39,127	39,127	-	-	-	-	-
Travel	-	-	-	3,798	3,798	-	-	-	-	-
Supplies	-	-	-	634	634	-	-	-	-	-
Contractual	-	-	-	1,076	1,076	-	-	-	-	-
Administrative fees	-	-	-	85,509	85,509	-	-	250	75,899	76,149
Other	-	-	-	59,348	59,348	-	-	-	-	-
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	-	-	-	-	-	-	-
<b>Total expenditures</b>	-	-	-	303,234	303,234	-	-	250	75,899	76,149
Program net income (loss)	-	-	-	34,691	34,691	-	-	4,750	223,556	228,306
Transfers	-	-	(79,941)	79,941	-	-	-	-	-	-
Prior Period Adjustment	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income										
Beginning	5,000,000	2,000,000	557,896	1,909,484	9,467,380	4,500,000	1,883,774	782,987	1,482,548	8,649,309
<b>Ending</b>	\$ 5,000,000	\$ 2,000,000	\$ 477,955	\$ 2,024,116	\$ 9,502,071	\$ 4,500,000	\$ 1,883,774	\$ 787,737	\$ 1,706,104	\$ 8,877,615

See notes to financial statements.



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	Clinical Effectiveness and Patient Safety				Molecular Proteomics in Cardiovascular Disease and Prevention					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	-	1,048	1,048
Total contribution revenue	-	-	-	-	-	-	-	-	1,048	1,048
Investment Income										
Realized gain (loss)	-	-	-	332,069	332,069	-	-	-	375,673	375,673
Unrealized gain (loss)	-	-	-	(88,509)	(88,509)	-	-	-	(98,119)	(98,119)
Endowment income	-	-	-	92,603	92,603	-	-	-	104,236	104,236
Total investment income (loss)	-	-	-	336,163	336,163	-	-	-	381,790	381,790
Total revenue	-	-	-	336,163	336,163	-	-	-	382,838	382,838
Expenditures										
Personal services	-	-	-	124,957	124,957	-	-	-	63,173	63,173
Fringe	-	-	-	20,117	20,117	-	-	-	119,582	119,582
Travel	-	-	-	13,080	13,080	-	-	-	9,332	9,332
Supplies	-	-	-	-	-	-	-	-	2,641	2,641
Contractual	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	88,154	88,154	-	-	-	97,642	97,642
Other	-	-	-	190,275	190,275	-	-	-	58,350	58,350
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	2,254	2,254	-	-	-	906	906
Total expenditures	-	-	-	438,837	438,837	-	-	-	351,626	351,626
Program net income (loss)	-	-	-	(102,674)	(102,674)	-	-	-	31,212	31,212
Transfers	-	-	-	-	-	-	-	(91,286)	96,281	4,995
Prior Period Adjustment	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Beginning	5,000,000	2,000,000	-	1,560,916	8,560,916	5,000,000	3,516,805	1,288,605	2,079,418	11,884,828
Ending	\$ 5,000,000	\$ 2,000,000	\$ -	\$ 1,458,242	\$ 8,458,242	\$ 5,000,000	\$ 3,516,805	\$ 1,197,319	\$ 2,206,911	\$ 11,921,035

See notes to financial statements.

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	Tobacco-Related Malignancy					Stroke				
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	-	-	-
<b>Total contribution revenue</b>	-	-	-	-	-	-	-	-	-	-
Investment Income										
Realized gain (loss)	-	-	-	346,363	346,363	-	-	-	362,783	362,783
Unrealized gain (loss)	-	-	-	(91,183)	(91,183)	-	-	-	(95,845)	(95,845)
Endowment income	-	-	-	96,280	96,280	-	-	-	101,136	101,136
<b>Total investment income (loss)</b>	-	-	-	351,460	351,460	-	-	-	368,074	368,074
<b>Total revenue</b>	-	-	-	351,460	351,460	-	-	-	368,074	368,074
Expenditures										
Personal services	-	-	-	30,098	30,098	-	-	-	80,036	80,036
Fringe	-	-	-	44,109	44,109	-	-	-	17,983	17,983
Travel	-	-	-	-	-	-	-	-	148	148
Supplies	-	-	-	64,690	64,690	-	-	-	1,058	1,058
Contractual	-	-	-	99	99	-	-	-	42,701	42,701
Administrative fees	-	-	-	88,886	88,886	-	-	-	93,719	93,719
Other	-	-	-	197,554	197,554	-	-	150,000	21,792	171,792
Facilities	-	-	-	332	332	-	-	-	-	-
Equipment	-	-	-	32,154	32,154	-	-	-	-	-
<b>Total expenditures</b>	-	-	-	457,922	457,922	-	-	150,000	257,437	407,437
Program net income (loss)	-	-	-	(106,462)	(106,462)	-	-	(150,000)	110,637	(39,363)
Transfers	-	-	-	-	-	-	-	(59,371)	59,371	-
Prior Period Adjustment	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income										
Beginning	5,000,000	1,671,812	1,581,120	2,407,809	10,660,741	5,000,000	2,500,000	531,184	1,819,109	9,850,293
<b>Ending</b>	\$ 5,000,000	\$ 1,671,812	\$ 1,581,120	\$ 2,301,347	\$ 10,554,279	\$ 5,000,000	\$ 2,500,000	\$ 321,813	\$ 1,989,117	\$ 9,810,930

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	Renal Disease Biomarker				Cancer Stem Cell Biology and Therapy					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ 179,467	\$ -	\$ -	\$ -	\$ 179,467	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	9,745	25,280	-	35,025	-	4,700	-	-	4,700
Total contribution revenue	179,467	9,745	25,280	-	214,492	-	4,700	-	-	4,700
Investment Income										
Realized gain (loss)	-	-	-	287,680	287,680	-	-	-	310,903	310,903
Unrealized gain (loss)	-	-	-	(77,209)	(77,209)	-	-	-	(81,147)	(81,147)
Endowment income	-	-	-	80,059	80,059	-	-	-	86,443	86,443
Total investment income (loss)	-	-	-	290,530	290,530	-	-	-	316,199	316,199
Total revenue	179,467	9,745	25,280	290,530	505,022	-	4,700	-	316,199	320,899
Expenditures										
Personal services	-	-	-	257	257	-	-	-	44,789	44,789
Fringe	-	-	-	72,996	72,996	-	-	-	-	-
Travel	-	-	-	3,481	3,481	-	-	-	2,401	2,401
Supplies	-	-	-	917	917	-	-	-	56,011	56,011
Contractual	-	-	-	-	-	-	-	-	45,043	45,043
Administrative fees	-	-	1,264	74,479	75,743	-	-	-	80,301	80,301
Other	-	-	-	140	140	-	-	-	69,286	69,286
Facilities	-	-	180,000	-	180,000	-	-	-	86,856	86,856
Equipment	-	-	-	-	-	-	-	-	192,284	192,284
Total expenditures	-	-	181,264	152,270	333,534	-	-	-	576,971	576,971
Program net income (loss)	179,467	9,745	(155,984)	138,260	171,488	-	4,700	-	(260,772)	(256,072)
Transfers	-	-	-	-	-	-	-	(342,890)	342,890	-
Prior Period Adjustment	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Beginning	4,820,533	1,403,462	1,123,262	1,207,413	8,554,670	5,000,000	1,525,536	1,919,145	1,232,177	9,676,858
Ending	\$ 5,000,000	\$ 1,413,207	\$ 967,278	\$ 1,345,673	\$ 8,726,158	\$ 5,000,000	\$ 1,530,236	\$ 1,576,255	\$ 1,314,295	\$ 9,420,786

See notes to financial statements.

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	Advanced Tissue Biofabrication				Medication Safety and Efficacy					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ 602,252	\$ -	\$ -	\$ -	\$ 602,252	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	300,000	-	-	300,000	-	-	-	-	-
Total contribution revenue	602,252	300,000	-	-	902,252	-	-	-	-	-
Investment Income										
Realized gain (loss)	-	-	-	284,630	284,630	-	-	-	103,832	103,832
Unrealized gain (loss)	-	-	-	(74,895)	(74,895)	-	-	-	(27,646)	(27,646)
Endowment income	-	-	-	78,899	78,899	-	-	-	28,950	28,950
Total investment income (loss)	-	-	-	288,634	288,634	-	-	-	105,136	105,136
Total revenue	602,252	300,000	-	288,634	1,190,886	-	-	-	105,136	105,136
Expenditures										
Personal services	-	-	-	-	-	-	-	-	30,000	30,000
Fringe	-	-	-	-	-	-	-	-	5,650	5,650
Travel	-	-	-	-	-	-	-	-	13,964	13,964
Supplies	-	-	-	-	-	-	-	-	701	701
Contractual	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	71,360	71,360	-	-	-	26,819	26,819
Other	-	-	-	-	-	-	-	-	3,162	3,162
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	-	-	-	-	-	-	-
Total expenditures	-	-	-	71,360	71,360	-	-	-	80,296	80,296
Program net income (loss)	602,252	300,000	-	217,274	1,119,526	-	-	-	24,840	24,840
Transfers	-	-	(39,770)	39,770	-	-	-	-	-	-
Prior Period Adjustment	337,177	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Beginning	4,060,571	900,000	114,770	1,850,897	6,926,238	1,600,000	600,000	137,344	381,768	2,719,112
Ending	\$ 5,000,000	\$ 1,200,000	\$ 75,000	\$ 2,107,941	\$ 8,045,764	\$ 1,600,000	\$ 600,000	\$ 137,344	\$ 406,608	\$ 2,743,952

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	Prostate Cancer Disparities				Lipidomics, Pathobiology and Therapy					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 750,000	\$ -	\$ -	\$ -	\$ 750,000
Non-state matching funds	-	-	-	-	-	-	700,000	-	-	700,000
Total contribution revenue	-	-	-	-	-	750,000	700,000	-	-	1,450,000
Investment Income										
Realized gain (loss)	-	-	-	218,230	218,230	-	-	-	259,988	259,988
Unrealized gain (loss)	-	-	-	(58,278)	(58,278)	-	-	-	(65,313)	(65,313)
Endowment income	-	-	-	60,762	60,762	-	-	-	72,099	72,099
Total investment income (loss)	-	-	-	220,714	220,714	-	-	-	266,774	266,774
Total revenue	-	-	-	220,714	220,714	750,000	700,000	-	266,774	1,716,774
Expenditures										
Personal services	-	-	-	9,565	9,565	-	-	-	7,505	7,505
Fringe	-	-	-	35,671	35,671	-	-	-	2,582	2,582
Travel	-	-	-	1,618	1,618	-	-	-	3,700	3,700
Supplies	-	-	-	237	237	-	-	-	44,459	44,459
Contractual	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	56,092	56,092	-	-	-	63,667	63,667
Other	-	-	-	21,066	21,066	-	-	-	32,703	32,703
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	-	-	-	-	-	-	-
Total expenditures	-	-	-	124,249	124,249	-	-	-	154,616	154,616
Program net income (loss)	-	-	-	96,465	96,465	750,000	700,000	-	112,158	1,562,158
Transfers	-	-	(122,725)	122,725	-	-	-	-	-	-
Prior Period Adjustment	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Beginning	3,600,000	1,080,000	132,494	897,236	5,709,730	2,901,058	2,051,075	(118,779)	987,588	5,820,942
Ending	\$ 3,600,000	\$ 1,080,000	\$ 9,769	\$ 1,116,426	\$ 5,806,195	\$ 3,651,058	\$ 2,751,075	\$ (118,779)	\$ 1,099,746	\$ 7,383,100

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
MEDICAL UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Inflammation and Fibrosis				Translational Biomedical Informatics					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ 769,934	\$ -	\$ -	\$ -	\$ 769,934	\$ 399,727	\$ -	\$ -	\$ -	\$ 399,727
Non-state matching funds	-	30,630	141,949	67	172,646	-	-	-	-	-
Total contribution revenue	769,934	30,630	141,949	67	942,580	399,727	-	-	-	399,727
Investment Income										
Realized gain (loss)	-	-	-	304,194	304,194	-	-	-	97,921	97,921
Unrealized gain (loss)	-	-	-	(82,811)	(82,811)	-	-	-	(26,961)	(26,961)
Endowment income	-	-	-	83,945	83,945	-	-	-	26,884	26,884
Total investment income (loss)	-	-	-	305,328	305,328	-	-	-	97,844	97,844
Total revenue	769,934	30,630	141,949	305,395	1,247,908	399,727	-	-	97,844	497,571
Expenditures										
Personal services	-	-	-	6,720	6,720	-	-	-	-	-
Fringe	-	-	-	9,779	9,779	-	-	-	-	-
Travel	-	-	-	-	-	-	-	-	-	-
Supplies	-	-	-	386	386	-	-	-	-	-
Contractual	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	65,614	78,379	143,993	-	-	-	24,553	24,553
Other	-	-	-	24,526	24,526	-	-	-	-	-
Facilities	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	38,750	6,999	45,749	-	-	-	-	-
Total expenditures	-	-	104,364	126,789	231,153	-	-	-	24,553	24,553
Program net income (loss)	769,934	30,630	37,585	178,606	1,016,755	399,727	-	-	73,291	473,018
Transfers	-	-	(188,075)	188,075	-	-	-	-	-	-
Prior Period Adjustment	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Beginning	4,230,065	2,236,669	2,520,471	1,072,558	10,059,763	1,600,273	600,000	750,000	143,524	3,093,797
Ending	\$ 4,999,999	\$ 2,267,299	\$ 2,369,981	\$ 1,439,239	\$ 11,076,518	\$ 2,000,000	\$ 600,000	\$ 750,000	\$ 216,815	\$ 3,566,815

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
MEDICAL UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Total - Medical University of South Carolina				
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue					
State funds	\$ 2,701,380	\$ -	\$ -	\$ -	\$ 2,701,380
Non-state matching funds	-	1,045,075	172,229	1,115	1,218,419
Total contribution revenue	2,701,380	1,045,075	172,229	1,115	3,919,799
Investment Income					
Realized gain (loss)	-	-	-	5,472,451	5,472,451
Unrealized gain (loss)	-	-	-	(1,210,026)	(1,210,026)
Endowment income	-	-	-	1,479,698	1,479,698
Total investment income (loss)	-	-	-	5,742,123	5,742,123
Total revenue	2,701,380	1,045,075	172,229	5,743,238	9,661,922
Expenditures					
Personal services	-	-	-	1,584,089	1,584,089
Fringe	-	-	-	568,007	568,007
Travel	-	-	-	111,085	111,085
Supplies	-	-	-	332,575	332,575
Contractual	-	-	-	108,428	108,428
Administrative fees	-	-	186,971	1,312,173	1,499,144
Other	-	-	150,128	891,507	1,041,635
Facilities	-	-	180,000	89,108	269,108
Equipment	-	-	38,750	518,723	557,473
Total expenditures	-	-	555,849	5,515,695	6,071,544
Program net income (loss)	2,701,380	1,045,075	(383,620)	227,543	3,590,378
Transfers	-	-	(2,269,361)	2,274,356	4,995
Prior Period Adjustment	337,177	-	-	-	337,177
Cumulative Program Net Income Beginning	83,312,500	33,226,354	14,375,827	28,570,526	159,485,207
Ending	\$ 86,351,057	\$ 34,271,429	\$ 11,722,846	\$ 31,072,425	\$ 163,417,757

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Nanostructures			Brain Imaging		
	State Endowment	Non-State Endowment	Non-State Expendable	State Endowment	Non-State Endowment	Non-State Expendable
Contribution Revenue						
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-
<b>Total contribution revenue</b>	<b>16,050</b>	<b>16,050</b>	<b>16,050</b>	<b>16,050</b>	<b>16,050</b>	<b>16,050</b>
Investment Income						
Realized gain (loss)	-	-	-	-	-	-
Unrealized gain (loss)	-	-	-	-	-	-
Endowment income	-	-	-	-	-	-
<b>Total investment income (loss)</b>	<b>104,484</b>	<b>104,484</b>	<b>104,484</b>	<b>104,484</b>	<b>104,484</b>	<b>104,484</b>
<b>Total revenue</b>	<b>311,572</b>	<b>311,572</b>	<b>311,572</b>	<b>311,572</b>	<b>311,572</b>	<b>311,572</b>
Expenditures						
Personal services	-	-	-	-	-	-
Fringe	-	-	-	-	-	-
Travel	-	-	-	-	-	-
Supplies	-	-	-	-	-	-
Contractual	-	-	-	-	-	-
Tuition assistance	-	-	-	-	-	-
Fixed charges	-	-	-	-	-	-
Administrative fees	-	-	-	-	-	-
Other	-	-	-	-	-	-
Equipment	-	-	-	-	-	-
<b>Total expenditures</b>	<b>372,262</b>	<b>372,262</b>	<b>372,262</b>	<b>372,262</b>	<b>372,262</b>	<b>372,262</b>
Program net income (loss)	(60,690)	(60,690)	(60,690)	(60,690)	(60,690)	(60,690)
Transfers	-	-	-	-	-	-
Cumulative Program Net Income Beginning	4,000,000	1,633,005	-	5,000,000	2,089,589	-
<b>Ending</b>	<b>\$ 4,000,000</b>	<b>\$ 1,631,274</b>	<b>\$ -</b>	<b>\$ 5,000,000</b>	<b>\$ 2,089,589</b>	<b>\$ -</b>

See notes to financial statements.



SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
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	Polymer Nanocomposites				Hydrogen Fuel Cell Economy					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	3,000	6,000	-	9,000	-	300,000	-	-	300,000
Total contribution revenue	-	3,000	6,000	-	9,000	-	300,000	-	-	300,000
Investment Income										
Realized gain (loss)	-	-	-	106,800	106,800	-	-	-	46,978	46,978
Unrealized gain (loss)	-	-	-	(49,213)	(49,213)	-	-	-	(1,986)	(1,986)
Endowment income	-	-	-	204,302	204,302	-	-	-	259,558	259,558
Total investment income (loss)	-	-	-	261,889	261,889	-	-	-	304,550	304,550
Total revenue	-	3,000	6,000	261,889	270,889	-	300,000	-	304,550	604,550
Expenditures										
Personal services	-	-	278	115,276	115,554	-	-	-	27,806	27,806
Fringe	-	-	2	17,894	17,896	-	-	-	2,588	2,588
Travel	-	-	121	7,987	8,108	-	-	-	-	-
Supplies	-	-	66	16,914	16,980	-	-	-	-	-
Contractual	-	-	-	23,248	23,248	-	-	-	-	-
Tuition assistance	-	-	-	-	-	-	-	-	-	-
Fixed charges	-	-	-	25,819	25,819	-	-	-	(18,597)	(18,597)
Administrative fees	-	-	-	16,524	16,524	-	-	-	4,509	4,509
Other	-	-	11,711	-	28,235	-	-	-	-	-
Equipment	-	-	-	-	-	-	-	-	-	-
Total expenditures	-	-	12,178	223,662	235,840	-	-	-	16,306	16,306
Program net income (loss)	-	3,000	(6,178)	38,227	35,049	-	300,000	-	288,244	588,244
Transfers	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Ending	3,500,000	1,424,525	20,040	507,354	5,451,919	5,000,000	1,500,000	(4,017)	1,047,235	7,543,218
Ending	\$ 3,500,000	\$ 1,427,525	\$ 13,862	\$ 545,581	\$ 5,486,968	\$ 5,000,000	\$ 1,800,000	\$ (4,017)	\$ 1,335,479	\$ 8,131,462

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
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	Tourism and Economic Development				Renewable Fuel Cells					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	-	-	-
<b>Total contribution revenue</b>	-	-	-	-	-	-	-	-	-	-
Investment Income										
Realized gain (loss)	-	-	-	-	-	-	-	-	97,575	97,575
Unrealized gain (loss)	-	-	-	17,625	17,625	-	-	-	(44,981)	(44,981)
Endowment income	-	-	-	192,967	192,967	-	-	-	159,778	159,778
<b>Total investment income (loss)</b>	-	-	-	210,592	210,592	-	-	-	212,372	212,372
<b>Total revenue</b>	-	-	-	210,592	210,592	-	-	-	212,372	212,372
Expenditures										
Personal services	-	-	-	161,632	161,632	-	-	-	196,136	196,136
Fringe	-	-	-	31,396	31,396	-	-	-	8,874	8,874
Travel	-	-	-	27,020	27,020	-	-	-	9,008	9,008
Supplies	-	-	-	5,921	5,921	-	-	-	2,456	2,456
Contractual	-	-	-	35,972	35,972	-	-	-	214	214
Tuition assistance	-	-	-	-	-	-	-	-	-	-
Fixed charges	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	31,114	31,114	-	-	-	23,592	23,592
Other	-	-	-	57,735	57,735	-	-	-	41,028	41,028
Equipment	-	-	-	74,438	74,438	-	-	-	-	-
<b>Total expenditures</b>	-	-	-	425,228	425,228	-	-	-	281,308	281,308
Program net income (loss)	-	-	-	(214,636)	(214,636)	-	-	-	(68,936)	(68,936)
Transfers	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Ending	2,000,000	1,363,600	87	752,768	4,116,455	3,000,000	1,200,000	-	834,451	5,034,451
<b>Ending</b>	\$ 2,000,000	\$ 1,363,600	\$ 87	\$ 538,132	\$ 3,901,819	\$ 3,000,000	\$ 1,200,000	\$ -	\$ 765,515	\$ 4,965,515

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
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	Solid Oxide Fuel Cells				Childhood Neurotherapeutics					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	-	-	-
<b>Total contribution revenue</b>	-	-	-	-	-	-	-	-	-	-
Investment Income										
Realized gain (loss)	-	-	-	8,139	8,139	-	-	-	192,284	192,284
Unrealized gain (loss)	-	-	-	(3,752)	(3,752)	-	-	-	(88,640)	(88,640)
Endowment income	-	-	-	169,152	169,152	-	-	-	217,022	217,022
<b>Total investment income (loss)</b>	-	-	-	173,539	173,539	-	-	-	320,666	320,666
<b>Total revenue</b>	-	-	-	173,539	173,539	-	-	-	320,666	320,666
Expenditures										
Personal services	-	-	-	104,826	104,826	-	-	-	3,923	3,923
Fringe	-	-	-	22,327	22,327	-	-	-	952	952
Travel	-	-	-	12,766	12,766	-	-	-	1,039	1,039
Supplies	-	-	-	20,748	20,748	-	-	-	1,061	1,061
Contractual	-	-	-	24,030	24,030	-	-	-	179,333	179,333
Tuition assistance	-	-	-	-	-	-	-	-	-	-
Fixed charges	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	1,968	1,968	-	-	-	46,491	46,491
Other	-	-	-	74	74	-	-	-	22,186	22,186
Equipment	-	-	-	63,000	63,000	-	-	-	20,196	20,196
<b>Total expenditures</b>	-	-	-	249,739	249,739	-	-	-	275,181	275,181
Program net income (loss)	-	-	-	(76,200)	(76,200)	-	-	-	45,485	45,485
Transfers	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Ending	3,000,000	900,000	-	387,463	4,287,463	5,000,000	2,500,000	-	1,363,663	8,863,663
<b>Ending</b>	\$ 3,000,000	\$ 900,000	\$ -	\$ 311,263	\$ 4,211,263	\$ 5,000,000	\$ 2,500,000	\$ -	\$ 1,409,148	\$ 8,909,148

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Rehabilitation and Reconstruction Science				Strategic Approaches to Electricity Production from Coal					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ 2,500,000	\$ -	\$ -	\$ -	\$ 2,500,000	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	-	-	-	-	-	-	-	6,500	6,500
Total contribution revenue	2,500,000	-	-	-	2,500,000	-	-	-	6,500	6,500
Investment Income										
Realized gain (loss)	-	-	-	114,835	114,835	-	-	-	176,471	176,471
Unrealized gain (loss)	-	-	-	(52,937)	(52,937)	-	-	-	(81,352)	(81,352)
Endowment income	-	-	3,032	208,936	211,968	-	-	-	305,230	305,230
Total investment income (loss)	-	-	3,032	270,834	273,866	-	-	-	400,349	400,349
Total revenue	2,500,000	-	3,032	270,834	2,773,866	-	-	-	406,849	406,849
Expenditures										
Personal services	-	-	-	205,131	205,131	-	-	42,854	231,687	274,541
Fringe	-	-	-	40,054	40,054	-	-	5,569	32,218	37,787
Travel	-	-	-	24,414	24,414	-	-	11,656	27,445	39,101
Supplies	-	-	-	9,165	9,165	-	-	29,312	1,740	31,052
Contractual	-	-	-	47,696	47,696	-	-	79,720	3,690	83,410
Tuition assistance	-	-	-	-	-	-	-	-	-	-
Fixed charges	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	27,765	27,765	-	-	4,175	42,662	42,662
Other	-	-	-	881	881	-	-	16,360	22,125	26,300
Equipment	-	-	-	2,751	2,751	-	-	-	-	16,360
Total expenditures	-	-	-	357,857	357,857	-	-	189,646	361,567	551,213
Program net income (loss)	2,500,000	-	3,032	(87,023)	2,416,009	-	-	(189,646)	45,282	(144,364)
Transfers	-	(1,500,000)	1,500,000	-	-	-	-	(81,185)	-	(81,185)
Cumulative Program Net Income Ending	2,500,000	4,298,027	-	546,462	7,344,489	5,000,000	2,500,000	549,975	1,370,300	9,420,275
Ending	\$ 5,000,000	\$ 2,798,027	\$ 1,503,032	\$ 459,439	\$ 9,760,498	\$ 5,000,000	\$ 2,500,000	\$ 279,144	\$ 1,415,582	\$ 9,194,726

See notes to financial statements.



**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURE  
YEAR ENDING JUNE 30, 2015**

	Healthcare Quality				Senior SMART™ Center					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 691,909	\$ -	\$ -	\$ -	\$ 691,909
Non-state matching funds	-	-	-	-	-	-	-	-	-	-
<b>Total contribution revenue</b>	-	-	-	-	-	691,909	-	-	-	691,909
Investment Income										
Realized gain (loss)	-	-	-	153,616	153,616	-	-	-	130,540	130,540
Unrealized gain (loss)	-	-	-	(70,815)	(70,815)	-	-	-	(60,177)	(60,177)
Endowment income	-	-	-	220,388	220,388	-	-	-	245,614	245,614
<b>Total investment income (loss)</b>	-	-	-	303,189	303,189	-	-	-	315,977	315,977
<b>Total revenue</b>	-	-	-	303,189	303,189	691,909	-	-	315,977	1,007,886
Expenditures										
Personal services	-	-	-	-	-	-	-	-	20,624	20,624
Fringe	-	-	-	-	-	-	-	-	2,732	2,732
Travel	-	-	-	6,172	6,172	-	-	-	2,387	2,387
Supplies	-	-	-	2,959	2,959	-	-	-	6,266	6,266
Contractual	-	-	-	-	-	-	-	-	10,960	10,960
Tuition assistance	-	-	-	-	-	-	-	-	-	-
Fixed charges	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	37,142	37,142	-	-	-	31,563	31,563
Other	-	-	-	37,881	37,881	-	-	1,500	9,208	10,708
Equipment	-	-	-	-	-	-	-	-	-	-
<b>Total expenditures</b>	-	-	-	84,154	84,154	-	-	1,500	83,740	85,240
Program net income (loss)	-	-	-	219,035	219,035	691,909	-	(1,500)	232,237	922,646
Transfers	-	-	-	-	-	-	-	(44,143)	44,143	-
Cumulative Program Net Income Ending	5,000,000	2,000,000	(712)	1,354,191	8,353,479	4,308,091	2,000,000	81,474	587,705	6,977,270
<b>Ending</b>	\$ 5,000,000	\$ 2,000,000	\$ (712)	\$ 1,573,226	\$ 8,572,514	\$ 5,000,000	\$ 2,000,000	\$ 35,831	\$ 864,085	\$ 7,899,916

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Nanoenvironmental Research and Risk Assessment				Nuclear Science and Energy					
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 377,649	\$ -	\$ -	\$ -	\$ 377,649
Non-state matching funds	-	-	-	-	-	-	165,050	9,580	-	174,630
<b>Total contribution revenue</b>	-	-	-	-	-	377,649	165,050	9,580	-	552,279
Investment Income										
Realized gain (loss)	-	-	-	83,045	83,045	-	-	-	68,207	68,207
Unrealized gain (loss)	-	-	-	(38,283)	(38,283)	-	-	-	(29,236)	(29,236)
Endowment income	-	-	-	138,160	138,160	-	-	-	138,320	138,320
<b>Total investment income (loss)</b>	-	-	-	182,922	182,922	-	-	-	177,291	177,291
<b>Total revenue</b>	-	-	-	182,922	182,922	377,649	165,050	9,580	177,291	729,570
Expenditures										
Personal services	-	-	-	248,467	248,467	-	-	2,150	42,897	45,047
Fringe	-	-	-	55,648	55,648	-	-	16	7,808	7,824
Travel	-	-	-	785	785	-	-	460	1,168	1,628
Supplies	-	-	-	12,086	12,086	-	-	967	326	1,293
Contractual	-	-	-	1,461	1,461	-	-	-	-	-
Tuition assistance	-	-	-	-	-	-	-	-	-	-
Fixed charges	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	20,079	20,079	-	-	-	16,279	16,279
Other	-	-	-	4,975	4,975	-	-	8,362	-	8,362
Equipment	-	-	-	257	257	-	-	-	18,798	18,798
<b>Total expenditures</b>	-	-	-	343,758	343,758	-	-	11,955	87,276	99,231
Program net income (loss)	-	-	-	(160,836)	(160,836)	377,649	165,050	(2,375)	90,015	630,339
Transfers	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Ending	3,000,000	1,000,000	2,120	667,090	4,669,210	2,622,351	775,000	126,437	383,547	3,907,335
<b>Ending</b>	\$ 3,000,000	\$ 1,000,000	\$ 2,120	\$ 506,254	\$ 4,508,374	\$ 3,000,000	\$ 940,050	\$ 124,062	\$ 473,562	\$ 4,537,674

See notes to financial statements.

**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015**

	Nuclear Science Strategies				Healthful Lifestyles			
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings
Contribution Revenue								
State funds	\$ 624,963	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Non-state matching funds	-	720,000	-	-	-	3,000	-	-
<b>Total contribution revenue</b>	<b>624,963</b>	<b>720,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3,000</b>	<b>-</b>	<b>3,000</b>
Investment Income								
Realized gain (loss)	-	-	-	58,610	-	-	-	34,703
Unrealized gain (loss)	-	-	-	(31,181)	-	-	-	(15,976)
Endowment income	-	-	-	112,713	-	-	-	125,520
<b>Total investment income (loss)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>140,142</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>144,247</b>
<b>Total revenue</b>	<b>624,963</b>	<b>720,000</b>	<b>-</b>	<b>140,142</b>	<b>-</b>	<b>3,000</b>	<b>-</b>	<b>147,247</b>
Expenditures								
Personal services	-	-	-	20,000	-	-	-	20,000
Fringe	-	-	-	4,837	-	-	-	3,593
Travel	-	-	-	-	-	-	-	-
Supplies	-	-	-	-	-	-	-	93
Contractual	-	-	-	-	-	-	-	-
Tuition assistance	-	-	-	-	-	-	-	-
Fixed charges	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	12,589	-	-	-	8,387
Other	-	-	-	-	-	-	-	1,172
Equipment	-	-	-	-	-	-	-	-
<b>Total expenditures</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>37,426</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>33,245</b>
Program net income (loss)	624,963	720,000	-	102,716	-	3,000	-	111,002
Transfers	-	-	-	-	-	-	-	-
Cumulative Program Net Income Ending	2,375,037	510,000	-	307,013	3,000,000	900,000	-	404,352
<b>Ending</b>	<b>\$ 3,000,000</b>	<b>\$ 1,230,000</b>	<b>\$ -</b>	<b>\$ 409,729</b>	<b>\$ 3,000,000</b>	<b>\$ 903,000</b>	<b>\$ -</b>	<b>\$ 515,354</b>

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Data Analysis, Simulation, Imaging, and Visualization					Multiphysics Heterogeneous Engineered Materials Center				
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue										
State funds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 250,000	\$ -	\$ -	\$ -	\$ 250,000
Non-state matching funds	-	-	-	-	-	-	-	-	-	-
<b>Total contribution revenue</b>	-	-	-	-	-	250,000	-	-	-	250,000
Investment Income										
Realized gain (loss)	-	-	-	113,540	113,540	-	-	-	103,913	103,913
Unrealized gain (loss)	-	-	-	(52,340)	(52,340)	-	-	-	(46,187)	(46,187)
Endowment income	-	-	-	106,539	106,539	-	-	-	116,294	116,294
<b>Total investment income (loss)</b>	-	-	-	167,739	167,739	-	-	-	174,020	174,020
<b>Total revenue</b>	-	-	-	167,739	167,739	250,000	-	-	174,020	424,020
Expenditures										
Personal services	-	-	-	-	-	-	-	-	-	-
Fringe	-	-	-	-	-	-	-	-	-	-
Travel	-	-	-	-	-	-	-	-	-	-
Supplies	-	-	-	-	-	-	-	-	-	-
Contractual	-	-	-	-	-	-	-	-	-	-
Tuition assistance	-	-	-	-	-	-	-	-	-	-
Fixed charges	-	-	-	-	-	-	-	-	-	-
Administrative fees	-	-	-	27,452	27,452	-	-	-	23,859	23,859
Other	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	-	-	-	-	-	-	-
<b>Total expenditures</b>	-	-	-	27,452	27,452	-	-	-	23,859	23,859
Program net income (loss)	-	-	-	140,287	140,287	250,000	-	-	150,161	400,161
Transfers	-	-	-	-	-	-	-	-	-	-
Cumulative Program Net Income Ending	2,000,000	1,582,098	-	815,525	4,397,623	1,750,000	2,000,000	-	137,153	3,887,153
<b>Ending</b>	\$ 2,000,000	\$ 1,582,098	\$ -	\$ 955,812	\$ 4,537,910	\$ 2,000,000	\$ 2,000,000	\$ -	\$ 287,314	\$ 4,287,314

See notes to financial statements.

SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
UNIVERSITY OF SOUTH CAROLINA  
STATEMENT OF PROGRAM REVENUES AND EXPENDITURES  
YEAR ENDING JUNE 30, 2015

	Total - University of South Carolina				
	State Endowment	Non-State Endowment	Non-State Expendable	Endowment Earnings	Total
Contribution Revenue					
State funds	\$ 4,444,521	\$ -	\$ -	\$ -	\$ 4,444,521
Non-state matching funds	-	1,191,050	15,580	22,550	1,229,180
Total contribution revenue	4,444,521	1,191,050	15,580	22,550	5,673,701
Investment Income					
Realized gain (loss)	-	-	-	1,726,217	1,726,217
Unrealized gain (loss)	-	-	-	(758,666)	(758,666)
Endowment income	-	-	3,032	3,416,017	3,419,049
Total investment income (loss)	-	-	3,032	4,383,568	4,386,600
Total revenue	4,444,521	1,191,050	18,612	4,406,118	10,060,301
Expenditures					
Personal services	-	-	45,282	1,648,452	1,693,734
Fringe	-	-	5,587	262,985	268,572
Travel	-	-	12,237	127,317	139,554
Supplies	-	-	30,345	152,902	183,247
Contractual	-	-	79,720	479,099	558,819
Tuition assistance	-	-	-	-	-
Fixed charges	-	-	-	-	-
Administrative fees	-	-	-	415,458	415,458
Other	-	-	25,748	274,507	300,255
Equipment	-	-	16,360	221,960	238,320
Total expenditures	-	-	215,279	3,582,680	3,797,959
Program net income (loss)	4,444,521	1,191,050	(196,667)	823,438	6,262,342
Transfers	-	(1,500,000)	1,374,672	44,143	(81,185)
Cumulative Program Net Income Ending	62,055,479	30,175,844	775,404	14,109,581	107,116,308
Ending	\$ 66,500,000	\$ 29,866,894	\$ 1,953,409	\$ 14,977,162	\$ 113,297,465

See notes to financial statements.



## **SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE YEAR ENDED JUNE 30, 2015**

### **Notes to Financial Statements**

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#### **Note 1. Description of Program**

The South Carolina Research Centers of Economic Excellence Act (the Act) was introduced by Chapter 75 of Act No. A356 and passed by the South Carolina General Assembly during the 2002 legislative session. The Act was established to create the South Carolina Centers of Economic Excellence (the Program or SmartState) and the Centers of Excellence Matching Endowment, which originally was to be funded annually by appropriations from the South Carolina Education Lottery in an aggregate amount not to exceed \$ 200 million by 2010. During the year ended June 30, 2009, the South Carolina General Assembly revised the Act to provide for \$ 30 million in guaranteed funding each year if (a) the lottery scholarships have been funded, and (b) at least 80% of all appropriations have been awarded by the Review Board through the most recent previous fiscal year. In addition, the Act created the Research Centers of Excellence Review Board (the Review Board), which is responsible for awarding state matching funds, for oversight and operation of the fund, and for various accountability requirements established in the statute for the Program. The Review Board consists of eleven members. Of these eleven members, three must be appointed by the Governor of South Carolina, three must be appointed by the President Pro Tempore of the South Carolina Senate, three must be appointed by the Speaker of the South Carolina House of Representatives, one member each must be appointed by the Chair of the Senate Finance Committee and the Chair of the House Ways and Means Committee. The Presidents of the senior research universities of the State of South Carolina (Clemson University, the Medical University of South Carolina, and the University of South Carolina) serve as ex-officio non-voting members.

The purpose of the Act is to create incentives for the senior research universities of South Carolina to raise capital from the private sector to fund endowments for professorships in research areas targeted to create well-paying jobs and enhanced economic opportunities for the people of South Carolina. Non-state funds are used to match dollar-for-dollar funds appropriated by the General Assembly from the South Carolina Education Lottery. The program's intent is to provide \$ 30 million annually in South Carolina Education Lottery appropriations if (a) the lottery scholarships have been funded, and (b) at least 80% of all appropriations have been awarded by the Review Board through the most recent previous fiscal year. These state appropriations are to be matched by the institutions.

The endowed professorships are awarded to the senior research universities through a competitive application process, which encourages collaboration among the three research universities as well as with other South Carolina institutions of higher education. Awards from the Centers of Excellence Matching Endowment are to be not less than \$ 2 million and not more than \$ 5 million. Non-state matching funds are to be raised exclusively from sources other than South Carolina tax dollars, and committed and raised subsequent to January 1, 2002. The Research Centers of Economic Excellence Act was amended March 17, 2004, adding Section 90, which allows the research institutions to use federal funds received after July 1, 2003, as non-state matching funds. The Research Centers of Economic Excellence Act was further amended on June 25, 2008, adding Section 100, which allows the Review Board to use a portion (as determined by the Review Board) of the non-state match to pay for Center operating costs and which requires that the full state award of any dissolved or withdrawn Center be returned to the Centers of Excellence Matching Endowment. Section 110 was also added on June 25, 2008, which provided the eligibility of in-kind contributions as non-state matches.

In 2010, the General Assembly amended the Research Centers of Economic Excellence Act to create a new type of SmartState Award to be made in concert with the South Carolina Department of Commerce. One-quarter of the unallocated Centers of Excellence Matching Endowment funds is dedicated for funding such "SmartState Commerce Awards." SmartState Commerce Awards may not individually exceed \$ 2 million and do not require the dollar-for-dollar non-state match of Standard SmartState awards. In place of a matching requirement, the Secretary of Commerce is required to certify that a "significant capital investment" has been made in the related research field of a proposed SmartState Commerce Award professorial endowment; the intent of SmartState Commerce Award endowment is to "directly support the industry." These revisions became effective January 1, 2011.

**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
YEAR ENDED JUNE 30, 2015**

**Notes to Financial Statements**

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**Note 2. Summary of Significant Accounting Policies**

**Basis of presentation and method of accounting:** The Program's financial statements are presented on the accrual basis of accounting. Revenues are recorded in the period earned, and expenses are recorded at the time liabilities are incurred. Inasmuch as state funds are not disbursed until cash gifts are in hand, a pledge received in support of a Center is not recognized as revenue until the pledge has been satisfied.

**Property and equipment:** Property and equipment purchased with program funds is deemed to be the property of the respective research institution.

**Assets available for program use:** State funds committed for Program use are permanently restricted, as well as 30% of the non-state matching funds of each Center of Economic Excellence, as endowment funds. Earnings from the endowments funds may be expended for direct program purposes, as well as any non-state matching funds that exceed the 30% endowment requirement. In-kind contributions of real property, equipment, supplies and other expendable property, and the value of goods and services directly benefiting and specifically identifiable to a project or program may be used to satisfy non-state matching requirements, but may not account for more than 70% of the non-state match total for each proposal.

**Use of estimates:** The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

**Federal grants used as non-state matching funds:** Federal grants used as non-state matching funds by the research institutions are not reflected in the statements of program revenues and expenditures. Such funds are maintained separately from the Program by the research institutions. See Note 4 for additional information.

**Note 3. Assets Maintained by Research Institutions**

The assets resulting from program activities are maintained by the research institutions, and are held by the universities, their respective foundations, or by the State Treasurer. At June 30, 2015, cash and investments maintained by the research institutions for program purposes was as follows:

Clemson University	\$ 106,728,818
Medical University of South Carolina	163,080,580
University of South Carolina	113,297,465
<b>Total</b>	<u><u>\$ 383,106,863</u></u>

**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE**  
**YEAR ENDED JUNE 30, 2015**

**Notes to Financial Statements**

**Note 4. Proposals Using Federal Grants for Non-State Matching Funds**

As described in Note 2, federal grants are eligible for use as non-state matching funds, but are not included in the statements of program revenues and expenses. The following table displays the total federal awards that have qualified as non-state matching funds and those that have been used toward the non-state match for each proposal as of June 30, 2015:

		<b>Federal Grants used as Non-State Matching Funds</b>	
<b><u>Institution</u></b>	<b><u>Proposal</u></b>	<b>Total Qualifying As Non-State Match</b>	<b>Amount Used As Non-State Match</b>
Clemson	Optical Materials	\$ 772,961	\$ 772,961
Clemson	Sustainable Development	1,313,439	1,000,000
Clemson	Advanced Fiber-Based Materials	310,000	310,000
MUSC	Proteomics	1,375,919	1,265,030
MUSC	Marine Genomics	2,927,730	2,208,577
MUSC	Translational Cancer Therapeutics	6,174,089	3,001,905
MUSC	Cancer Drug Discovery	6,292,518	3,395,490
MUSC	Gastrointestinal Cancer	3,221,264	2,438,472
MUSC	Vision Science	1,956,478	1,476,419
MUSC	Tobacco-Related Malignancies	3,221,264	2,402,853
MUSC	Renal Disease Biomarkers	268,520	254,406
MUSC	Cancer Stem Cell	2,457,288	1,851,876
MUSC	Advanced Tissue Biofabrication	2,578,100	2,502,146
MUSC	Lipidomics	1,624,983	1,523,925
USC	Nanostructures	1,444,820	1,444,820
USC	Brain Imaging	1,336,000	1,336,000
USC	Polymer Nanocomposites	2,020,110	2,020,110
USC	Hydrogen Fuel Cell Economy	661,451	661,451
USC	Renewable Fuel Cells	970,516	970,516
USC	Solid Oxide Fuel Cells	1,106,179	1,106,179
USC	Childhood Neurotherapeutics	1,243,106	1,243,106
USC	Data Analysis	533,444	533,444
USC	Nanoenvironmental Research and Assessment	731,822	731,822
USC	Nuclear Science and Energy	848,512	842,408
USC	Nuclear Science Strategies	1,105,531	1,105,531
		<u>\$ 46,496,044</u>	<u>\$ 36,399,447</u>

**Note 5. Prior Period Adjustments**

The prior period adjustment of \$ 337,177 was made to the MUSC Advanced Tissue Biofabrication Center.

**Note 6. Subsequent Events**

Subsequent events have been evaluated through October 30, 2015, the date these financial statements were available to be issued. As of October 30, 2015, the following drawdown requests that have been submitted before June 30, 2015, have been approved by the Joint Other Funds Committee and disbursed:

USC	Nuclear Science Strategies	<u>\$ 624,963</u>
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**INDEPENDENT AUDITOR'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH GOVERNMENT AUDITING STANDARDS**

To the Review Board  
South Carolina Centers of Economic Excellence  
Columbia, South Carolina

We have audited the financial statements of the South Carolina Centers of Economic Excellence for the year ended June 30, 2015, and have issued our report thereon dated October 30, 2015. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

**Internal Control Over Financial Reporting**

In planning and performing our audit, we considered South Carolina Centers of Economic Excellence's internal control over financial reporting (internal control) as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Program's internal control. Accordingly, we do not express an opinion on the effectiveness of the Program's internal control.

A control deficiency exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent or detect misstatements on a timely basis. A significant deficiency is a control deficiency, or combination of control deficiencies, that adversely affects the entity's ability to initiate, authorize, record, process or report financial data reliably in accordance with generally accepted accounting principles such that there is more than a remote likelihood that a misstatement of the entity's financial statements that is more than inconsequential will not be prevented or detected by the entity's internal control.

A material weakness is a significant deficiency, or combination of significant deficiencies, that results in more than a remote likelihood that a material misstatement of the financial statements will not be prevented or detected by the entity's internal control.

Our consideration of internal control over financial reporting was for the limited purpose described in the first paragraph of this section and would not necessarily identify all deficiencies in internal control that might be significant deficiencies or material weaknesses. We did not identify any deficiencies in internal control over financial reporting that we would consider to be significant deficiencies or material weaknesses, as defined above.

**Compliance and Other Matters**

As part of obtaining reasonable assurance about whether South Carolina Centers of Economic Excellence's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance that are required to be reported under *Government Auditing Standards*.

**Purpose of this Report**

This report is intended solely for the information of management, the Review Board, the South Carolina Budget and Control Board, and the General Assembly and is not intended to be and should not be used by anyone other than those specified parties.

*Derrick, Stubbs & Stith, LLP*

October 30, 2015



SmartState Program  
Management's Discussion and Analysis  
Period: Fiscal Year 2014-15

Management's Discussion and Analysis provides an overview of the SmartState program and data covering the fiscal year ended June 30, 2015. This discussion and analysis should be read in conjunction with the financial statement and accompanying notes. The financial statements have been prepared by an independent auditor (Derrick, Stubbs & Stith, LLP) in accordance with S.C. Code of Laws, as amended, Section 2-75-10.

**Overview of the SmartState Program**

In 2002, the South Carolina General Assembly passed the Research Centers of Economic Excellence (RCEE) Act. The legislation originally required appropriation of \$200 million through 2010<sup>1</sup> from the South Carolina Education Lottery to establish unique Centers of Economic Excellence at South Carolina's three senior research institutions: Clemson University, University of South Carolina (USC), and Medical University of South Carolina (MUSC). Each Center of Economic Excellence (Center) specializes in unique, knowledge-based economy research (in fields such as engineering, nanotechnology, biomedical science, and energy science) that promotes and creates enhanced economic opportunities for the state. In 2008, the General Assembly amended the RCEE Act to replace the \$200 million funding cap and the 2010 sunset date with a statutory guarantee of \$30 million in annual funding so long as (a) Lottery-supported scholarships have been fully funded, and (b) the SmartState Review Board has, by the end of the most previous fiscal year, awarded a minimum of 80% of overall appropriations since 2003.

The RCEE Act also created the SmartState Review Board, which provides program oversight. The Review Board is composed of 11 members: three appointed by the Governor; three by the President Pro Tempore of the Senate; three by the Speaker of the

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<sup>1</sup> The General Assembly appropriated \$30 million per year in the state budget for fiscal years 2003 through 2008. The General Assembly has appropriated no new funds for fiscal years 2009 through 2015.



House of Representatives; one by the Chair of the Senate Finance Committee; and one by the Chair of the House Ways & Means Committee. Membership terms are three years, and individuals may serve three total terms. Presidents of South Carolina's three research universities serve as ex-officio, non-voting members of the Review Board. Staff and operational support for the SmartState Program are provided by CHE.

The SmartState Review Board held its first meeting on October 17, 2002, at which it approved formal *Bylaws*. On December 5, 2002, the Review Board approved Program *Guidelines* and *Requests for Proposals Guidelines for 2002-2003*, which established a competitive, annual process whereby Centers of Economic Excellence are proposed by the research institutions and approved by the Review Board. The three-tier review process includes two rigorous scientific evaluations (a technical review and an onsite panel review), followed by the Review Board's analysis of the review findings and a formal vote on individual proposals. In 2008, the General Assembly amended the RCEE Act by encoding the technical and scientific review process for proposals.

Once a new Center is approved, an institution has 18 months in which to solicit non-state (private, federal, or municipal) investors to pledge dollar-for-dollar matching of a Center's total state award (between \$2 million to \$5 million). In February 2007, the SmartState Review Board approved a policy whereby an institution may apply for up to two six-month extensions beyond the 18-month pledge verification deadline. All matching pledges must be realized within 78 months of a Center's approval date. In February 2009, the SmartState Review Board approved a policy whereby an institution may apply for as many as two six-month extensions beyond the 78-month drawdown deadline.

State funds may only be drawn against perfected (eligible and received) non-state pledges. The majority of funds (all of the state funds plus no less than 30% of the non-state match) is placed in endowment, which may be used to pay the salaries or salary supplements of the world-class scientists (endowed chairs) specially recruited to lead each Center, as well as to pay for the purchase of specialized equipment, laboratory construction, other faculty, and research assistants. In 2008, the General Assembly amended the RCEE Act by codifying the use of a certain portion (determined by the SmartState Review Board) of non-state matching funds "to pay for initial operating costs" of Centers (S.C. 2-75-100).

On December 12, 2006, the SmartState Review Board convened a Cost Share Work Group. Representatives from all three research institutions, the Office of the State Treasurer, and CHE gathered to discuss accounting standards related to the RCEE Act. On February 26, 2007, the Review Board approved a Cost Share Accounting Policy which contains specific guidelines for claiming and valuing in-kind matches. In 2008, the General Assembly amended the RCEE Act to encode the use of cash equivalent and in-kind donations as valid non-state matches for the SmartState Program.

In 2010, the General Assembly amended the RCEE act to create a new type of SmartState award to be made in concert with the South Carolina Department of Commerce. One-quarter of the unallocated Centers of Excellence Matching Endowment funds were dedicated for funding such “SmartState Commerce Awards.” SmartState Commerce Awards may not individually exceed \$2 million and do not require the dollar-for-dollar, non-state match of standard SmartState awards. In place of the matching requirement, the Secretary of Commerce is required to certify that a “significant capital investment” has been made in the related research field of the proposed SmartState Commerce Award professorial endowment. These revisions became effective January 1, 2011. The SmartState Review Board issued an RFP for awards in FY 2011. However, at the request of the Department of Commerce, the awards for this component of the SmartState Program have not been made.

Over time, each research institution has developed concentrated SmartState focus areas. Clemson University’s core strengths lie in the area of automotive and transportation technology, advanced materials and biotechnology/biomedical sciences. USC’s Centers generally fall within three clusters: future fuels, biomedical sciences, and nanotechnology. MUSC’s strengths lie in the areas of neuroscience, cancer research, vascular disease, and health care quality and finance.

One hallmark of the SmartState Program is an almost unprecedented scientific collaboration at the academic level. More than one-third of the Centers are partnerships between and among state public institutions, including three four-year comprehensive teaching universities. Dr. John Schaefer, SmartState Endowed Chair at MUSC’s Clinical Effectiveness and Patient Safety Center has noted that such academic collaboration rarely exists—not even at Harvard or Yale. The lure of bonded research partnerships serves as an enticing recruiting tool to the renowned scientists required to lead each Center.

## **2014-15 SmartState Summary Information**

At the end of FY 2014-15, the program consists of 51 Centers with 85 approved SmartState Endowed Chairs of which 54 have been appointed to date. As envisioned by the General Assembly, the SmartState Program has become a successful boost to the state's knowledge-based economy. Of the \$197.6 million<sup>2</sup> in SmartState awards granted by the Board through the end of FY 2014-15, \$197.6 million in matching pledges have been committed by non-state sources. Of the committed pledges through FY 2014-15, \$195.2 million have been perfected and drawn down.

The table found on the following pages provides summary information on the Centers from FY 2002-03 through FY 2014-15.

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<sup>2</sup> To date, the SmartState Review Board has obligated \$17.6 million in accrued program interest for the awarding of additional proposals, as is permitted by statute. To date, the Review Board has used all of the \$17.6 million in accrued interest to fund proposals in the 2008-2009, 2009-2010 and 2012-2013 award cycles.



**Summary of Approved SmartState Program  
Centers of Economic Excellence by Fiscal (Funding) Year (2002-03 – 2014-15)**

<b>Funding Year 2002-2003</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Automotive Systems Integration	1	\$5 million
Clemson	Automotive Manufacturing	1	\$5 million
USC	Nanostructures	1	\$4 million
USC/MUSC	Brain Imaging	3 <sup>1</sup>	\$5 million
MUSC	Proteomics	2	\$4 million
MUSC	Neuroscience	2 <sup>2</sup>	\$3 million
MUSC/USC/CoC	Marine Genomics	2 <sup>3</sup>	\$4 million
<b>Total Awarded in 2002-2003</b>		<b>12</b>	<b>\$30 million</b>
<b>Funding Year 2003-2004</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Automotive Design & Development	1	\$5 million
Clemson	Electronic Systems Integration	1	\$3 million
Clemson	Photonic Materials	1	\$5 million
USC	Polymer Nanocomposites	1	\$3.5 million
USC	Innovation and Commercialization	1 <sup>4</sup>	\$2.5 million
MUSC/Clemson/USC	Regenerative Medicine	3	\$5 million
MUSC/USC	Translational Cancer Therapeutics	2	\$5 million
<b>Total Awarded in 2003-2004</b>		<b>10</b>	<b>\$29 million</b>
<b>Funding Year 2004-2005</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Restoration [WITHDRAWN]	—	[\$3 million]
Clemson	Electron Imaging [WITHDRAWN]	—	[\$5 million]
USC	Catalysis for Renewable Fuels	1	\$3 million
USC	Innovation and Commercialization	[See 03-04]	\$2.5 million
USC/Coastal Carolina	Tourism & Economic Development	1	\$2 million
MUSC	Gastrointestinal Cancer Diagnostics	2 <sup>5</sup>	\$5 million
MUSC/USC	Cancer Drug Discovery	4	\$5 million
MUSC	Vision Science	2 <sup>6</sup>	\$4.5 million

<sup>1</sup>Revised to three chairs by act of the SmartState Review Board on January 12, 2009.

<sup>2</sup>Revised to two chairs by act of the SmartState Review Board on February 9, 2015.

<sup>3</sup>Revised to two chairs by act of the SmartState Review Board on February 23, 2010.

<sup>4</sup>The The Hydrogen Economy Center was approved during 2003-2004. Funding for one half of this Center was provided in 2003-04, the other half in 2004-2005. In 2014, the name changed to the SmartState Center for Innovation and Commercialization and revised to one chair.

<sup>5</sup> Increased from one to two endowed chairs by act of the SmartState Review Board on September 8, 2008.

<sup>6</sup>Revised to two chairs and relinquished USC as a collaborative partner by act of the SmartState Review Board on February 11, 2014.

<b>Total Awarded in 2004-2005</b>		<b>10</b>	<b>\$22 million</b>
<b>Funding Year 2005-2006</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Supply Chain Optimization & Logistics	1	\$2 million
Clemson	Urban Ecology and Restoration	1	\$2 million
Clemson	Advanced Fiber-Based Materials	1	\$4 million
Clemson	Molecular Nutrition [WITHDRAWN]	—	[\$2 million]
USC	Solid Oxide Fuel Cells	1	\$3 million
USC/MUSC	Childhood Neurotherapeutics	3	\$5 million
MUSC	Molecular Proteomics in Cardiovascular Disease & Prevention	2	\$5 million
MUSC/USC	Clinical Effectiveness & Patient Safety <sup>7</sup>	3	\$5 million
<b>Total Awarded in 2005-2006</b>		<b>12</b>	<b>\$26 million</b>
<b>Funding Year 2006-2007</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson/MUSC	Health Facilities Design & Testing <sup>8</sup>	2	\$2 million
USC	Rehabilitation and Reconstruction Science	1	\$5 million
USC	Strategic Approaches to the Generation of Electricity	1	\$5 million
USC/MUSC/Clemson	Healthcare Quality	2	\$5 million
USC/Clemson	Senior SMART <sup>TM</sup> Center <sup>9</sup>	3	\$5 million
MUSC	Tobacco-Related Malignancy	2	\$5 million
MUSC/USC	Stroke	3	\$5 million
<b>Total Awarded in 2006-2007</b>		<b>14</b>	<b>\$32 million</b>

<sup>7</sup>On September 9, 2008, the SmartState Review Board approved a revision to this proposal which relinquished Clemson University as a collaborative partner and transferred the Chair at Clemson to MUSC.

<sup>8</sup>The state award total for this Center was revised from \$5 million to \$2 million by the SmartState Review Board on June 11, 2012.

<sup>9</sup>The SeniorSMART Center of Economic Excellence was approved in 2007-2008. Funding was provided from 2006-2007 dollars.



**SC Centers of Economic Excellence Funded Proposals (continued)**

<b>Funding Year 2007-2008</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Optoelectronics	1	\$2 million
Clemson	CyberInstitute	1	\$2 million
USC	Environmental Nanoscience and Risk	1	\$3 million
USC	Nuclear Science and Energy	1	\$3 million
MUSC	Renal Disease Biomarker	2	\$5 million
MUSC/Clemson	Cancer Stem Cell Biology	2	\$5 million
MUSC/USC/Clemson	Advanced Tissue Biofabrication	3	\$5 million
MUSC/USC/SCSU	Cancer Disparities <sup>10</sup>	3	\$3.6 million
MUSC/USC	Medication Safety & Efficacy <sup>11</sup>	1	\$2 million
<b>Total Awarded in 2007-2008</b>		<b>15</b>	<b>\$30.6 million</b>
<b>Funding Year 2008-2009</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Tissue Systems Characterization [WITHDRAWN]	—	[\$3 million]
USC	General Atomics Center for Development of Transformational Nuclear Technologies	1	\$3 million
USC/MUSC	Healthful Lifestyles <sup>12</sup>	2	\$3 million
MUSC	Lipidomics, Pathobiology and Therapy	2	\$5 million
<b>Total Awarded in 2008-2009</b>		<b>5</b>	<b>\$11 million</b>
<b>Funding Year 2009-2010</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Sustainable Development	1	\$4 million
USC	Data Analysis	1	\$2 million
MUSC	Inflammation and Fibrosis Research	2	\$5 million
<b>Total Awarded in 2009-2010</b>		<b>4</b>	<b>\$11 million</b>

<sup>10</sup>The Cancer Disparities Center of Economic Excellence was approved in 2008-2009. Funding was provided from 2007-2008 dollars.

<sup>11</sup>The Medication Safety & Efficacy Center was approved in 2008-2009. Funding was provided from 2007-2008 dollars.

<sup>12</sup>The Healthful Lifestyles Center of Economic Excellence was approved in 2009-2010 with funding from 2008-2009 dollars.

**SC Centers of Economic Excellence Funded Proposals (continued)**

<b>Funding Year 2012-2013</b>			
<b>Institution (fiscal institution first)</b>	<b>Proposal Title</b>	<b>Endowed Chairs</b>	<b>Proposal Amount</b>
Clemson	Smart Grid Technology	1	\$2 million
USC	Multifunctional Materials and Structures	1	\$2 million
MUSC	Translational Biomedical Informatics	1	\$2 million
<b>Total Awarded in 2012-2013</b>		<b>3</b>	<b>\$6 million</b>

<b>Program Totals<sup>13</sup></b>	
<b>TOTAL LOTTERY APPROPRIATIONS (2003-2008)</b>	<b>\$180 million</b>
<b>ACCRUED PROGRAM INTEREST USED FOR ADDITIONAL AWARDS *</b> * As permitted by S.C. 2-75-30(A).	<b>\$17.6 million</b>
<b>TOTAL FUNDS AWARDED (2003-2013)</b>	<b>\$197.6 million</b>

<b>Research Institution Totals<sup>14</sup></b>				
<b>Institution</b>	<b>Centers Awarded</b>	<b>Chairs Created</b>	<b>Chairs Appointed (Remaining to be Appointed)</b>	<b>State Funds Drawn</b>
Clemson University	13	16	7 (7)	\$43,000,000
University of South Carolina	18	28	21 (7)	\$65,875,037
Medical University of South Carolina	20	41	24 (17)	\$86,3517,057
<b>TOTALS</b>	<b>51</b>	<b>85</b>	<b>54 (31)</b>	<b>\$195,226,094</b>

<sup>13</sup>Program totals are as of fiscal year end June 30, 2015.

<sup>14</sup>For Research Institution Totals, Centers Awarded and State Funds Drawn for each institution are tallied on the fiscal agent in cases of joint proposals. Chairs are tallied based on the assigned institution as of November 2015. For updated information on Centers and program totals, contact CHE or see [www.smartstatesc.org](http://www.smartstatesc.org).

**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE  
REVIEW BOARD  
JUNE 30, 2015**

<b><u>NAME</u></b>	<b><u>POSITION</u></b>	<b><u>APPOINTMENT</u></b>
Regan Voit	Chair	Chair, Senate Finance Committee
Melvin C. Williams	Vice-Chair	President Pro Tempore of the Senate
Lisa Main	Secretary	Speaker of the House
Robert W. Pearce, Jr.	Member	Speaker of the House
Jason Premo	Member	Governor
Charles W. Garnett	Member	Governor
Karoly Kerekes	Member	Governor
Patrick Turner	Member	President Pro Tempore of the Senate
Roberta Bankhead Wood	Member	Chair, House Ways and Means Committee
James P. Clements	Ex-officio	President, Clemson Univ.
David J. Cole	Ex-officio	President, Medical Univ. of S.C.
Harris Pastides	Ex-officio	President, Univ. of S. C.

**South Carolina Centers  
of Economic Excellence**

**Report to the  
Review Board**

**June 30, 2015**

To the Review Board  
South Carolina Centers of Economic Excellence  
Columbia, South Carolina

We are pleased to present this report related to our audit of the financial statements of South Carolina Centers of Economic Excellence for the year ended June 30, 2015. This report summarizes certain matters required by professional standards to be communicated to you in your oversight responsibility for South Carolina Centers of Economic Excellence's financial reporting process.

This report is intended solely for the information and use of management, the Review Board, the South Carolina Budget and Control Board, and General Assembly and is not intended to be and should not be used by anyone other than these specified parties. It will be our pleasure to respond to any questions you have regarding this report. We appreciate the opportunity to continue to be of service to South Carolina Centers of Economic Excellence.

*Derrick, Stubbs & Stith, LLP*

October 30, 2015



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## Required Communications

Generally accepted auditing standards (AU-C 260, *The Auditor's Communication With Those Charged With Governance*) require the auditor to promote effective two-way communication between the auditor and those charged with governance. Consistent with this requirement, the following summarizes our responsibilities regarding the financial statement audit as well as observations arising from our audit that are significant and relevant to your responsibility to oversee the financial reporting process.

Area	Comments
<b>Auditor's Responsibility Under Professional Standards</b>	Our audit of the financial statements of South Carolina Centers of Economic Excellence (Program) was conducted in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable rather than absolute assurance about whether the financial statements are free of material misstatement whether caused by error or fraud. An audit of financial statements includes obtaining an understanding of internal control sufficient to plan the audit and to determine the nature, timing and extent of audit procedures to be performed.
<b>Accounting Practices</b>	<p><b>Adoption of, or Change in, Accounting Policies</b> Management has the ultimate responsibility for the appropriateness of the accounting policies used by the Program. The Program did not adopt any significant new accounting policies nor have there been any changes in existing significant accounting policies during the current period.</p> <p><b>Significant or Unusual Transactions</b> We did not identify any significant or unusual transactions or significant accounting policies in controversial or emerging areas for which there is a lack of authoritative guidance or consensus.</p> <p><b>Alternative Treatments Discussed with Management</b> We did not discuss with management any alternative treatments within generally accepted accounting principles for accounting policies and practices related to material items during the current audit period.</p>
<b>Management's Judgments and Accounting Estimates</b>	The financial statements do not contain any significant estimates.
<b>Financial Statement Disclosures</b>	In various conversations during our audit, we discussed various financial statement disclosures. No disclosures are known that are not consistent with previous years' disclosures.
<b>Audit Adjustments</b>	There were no recorded audit adjustments.
<b>Uncorrected Misstatements</b>	There were no significant unrecorded misstatements noted during the audit.
<b>Disagreements with Management</b>	We encountered no disagreements with management over the application of significant accounting principles, the basis for management's judgments on any significant matters, the scope of the audit or significant disclosures to be included in the financial statements.
<b>Consultations with Other Accountants</b>	We are not aware of any consultations management had with other accountants about accounting or auditing matters.

Area	Comments
<b>Significant Issues Discussed with Management</b>	No significant issues arising from the audit were discussed or were the subject of correspondence with management.
<b>Difficulties Encountered Performing the Audit</b>	We did not encounter any difficulties in dealing with management during the audit.
<b>Communication of Significant Deficiencies and Material Weaknesses</b>	There were no significant deficiencies or material weaknesses identified during our audit of the financial statements.
<b>Certain Written Communications Between Management and Our Firm</b>	Copies of certain written communications between our Firm and the management of the Program are on Pages 3 - 18.



# South Carolina Commission on Higher Education

Mr. Tim M. Hofferth, Chair  
Ms. Allison Dean Love, Vice Chair  
Mr. Paul O. Bulson, III  
Dr. Bettie Rose Horne  
Ms. Dianne C. Kuhl  
Dr. Louis B. Lynn  
Vice Admiral Charles Munns, USN (ret.)  
Mr. Clark B. Parker  
Mr. Kim F. Phillips  
Ms. Terrye C. Seckinger  
Dr. Jennifer B. Settlemyer  
Mr. Hood Temple  
Dr. Evans Whitaker  
  
Mr. Gary S. Glenn  
Interim Executive Director

October 30, 2015

Derrick, Stubbs & Stith, L.L.P.  
Post Office Box 36  
Columbia, South Carolina 29202

In connection with your audit of the financial statements of the South Carolina Centers of Economic Excellence (the Program) for the year ended June 30, 2015, we confirm that we are responsible for the fair presentation of the statements of program revenues and expenditures in conformity with accounting principles generally accepted in the United States of America.

We confirm to the best of our knowledge and belief, as of October 30, 2015, the following representations made to you during your audit.

1. The financial statements referred to above are fairly presented in conformity with accounting principles generally accepted in the United States of America.
2. We have identified for you all organizations that are a part of this reporting entity or with which we have a relationship, as these organizations are defined in Section 2100 of the Governmental Accounting Standards Board's Codification of Government Accounting and Financial Reporting Standards, that are:
  - a. Component Units.
  - b. Other organizations for which the nature and significance of their relationship with the Program are such that exclusion would cause the reporting entity's financial statements to be misleading or incomplete.
  - c. Jointly governed organizations in which we participated.
3. We have identified for you all funds and governmental functions related to the Program.
4. We have properly classified all funds and activities related to the Program.
5. We are responsible for compliance with laws and regulations applicable to the Program including adopting, approving, and amending budgets.
6. We have identified and disclosed to you all laws and regulations that have a direct and material effect on the determination of financial statement amounts including legal and contractual provisions for reporting specific activities.
7. We have made available to you:
  - a. All financial records and related data of all funds and account groups related to the Program, including those of all special funds, programs, departments, projects, activities, etc., in existence at any time during the period covered by your audit.
  - b. All minutes of the meetings of the Review Board and committees of Board members or summaries of actions of recent meetings for which minutes have not yet been prepared.
  - c. All communications from grantors, lenders, other funding sources or regulatory agencies concerning noncompliance with:
    - (1) Statutory, regulatory or contractual provisions or requirements.
    - (2) Financial reporting practices that could have a material effect on the financial statements.

8. We have no knowledge of fraud or suspected fraud affecting the Program involving:
  - a. Management.
  - b. Employees who have significant roles in the internal control, or
  - c. Others where the fraud could have a material effect on the financial statements.
9. We acknowledge our responsibility for the design and implementation of programs and controls to provide reasonable assurance that fraud is prevented and detected.
10. We have no knowledge of any allegations of fraud or suspected fraud affecting the Program received in communications from employees, former employees, analysts, regulators, short sellers or others.
11. We are aware of no significant deficiencies, including material weaknesses, in the design or operation of internal controls that could adversely affect the Program's ability to record process, summarize, and report financial data.
12. There have been no communications from regulatory agencies concerning noncompliance with, or deficiencies in, financial reporting practices related to the Program.
13. We have no plans or intentions that may materially affect the carrying value or classification of assets and liabilities created by the Program.
14. The following, if applicable, have been properly reflected and/or disclosed in the financial statements:
  - a. Related party transactions and joint ventures in which the Program participates, as defined in Section 2100 of the Governmental Accounting Standards Board's Codification of Governmental Accounting and Financial Reporting Standards, and interfund transactions, including interfund accounts and advances receivable and payable, sale and purchase transactions, interfund transfers, long-term loans, leasing arrangements and guarantees, all of which have been recorded in accordance with the economic substance of the transaction and appropriately classified and reported.
  - b. Guarantees, whether written or oral, under which the Program is contingently liable.
  - c. Arrangements with financial institutions involving compensating balances or other arrangements involving restrictions on cash balances and line of credit or similar arrangements.
  - d. Line of credit or similar arrangements
  - e. Agreements to repurchase assets previously sold.
  - f. Security agreements in effect under the Uniform Commercial Code.
  - g. Any other liens or encumbrances on assets or revenues or any assets or revenues which were pledged as collateral for any liability or which were subordinated in any way.
  - h. The fair value of investments.
  - i. Amounts of contractual obligations for plant construction and purchase of real property or equipment not included in the liabilities or encumbrances recorded on the books.
  - j. Any liabilities which are subordinated in any way to any other actual or possible liabilities.
  - k. All leases and material amounts of rental obligations under long-term leases.
  - l. All significant estimates and material concentrations known to management which are required to be disclosed in accordance with the Risks and Uncertainties Topic of the FASB Accounting Standards Codification. Significant estimates are estimates at the balance sheet date which could change materially within the next year. Concentrations refer to volumes of business, revenues, available sources of supply, or markets for which events could occur which would significantly disrupt normal finances within the next year.
  - m. Deposits and investment securities category of custodial credit risk.
15. We are responsible for making the accounting estimates included in the financial statements. Those estimates reflect our judgment based on our knowledge and experience about past and current events and our assumptions about conditions we expect to exist and courses of action we expect to take. In that regard, adequate provisions have been made:
  - a. To reduce receivables to their estimated net collectible amounts.



- b. To reduce investments, intangibles, and other assets which have permanently declined in value to their realizable values.
  - c. For risk retention, including uninsured losses or loss retentions (deductibles) attributable to events occurring through June 30, 2015 and/or for expected retroactive insurance premium adjustments applicable to periods through June 30, 2015.
  - d. For any material loss to be sustained in the fulfillment of, or from the inability to fulfill, any service commitments.
  - e. For any material loss to be sustained as a result of purchase commitments.
  - f. For environmental clean up obligations.
16. There are no:
- a. Material transactions that have not been properly recorded in the accounting records underlying the financial statements.
  - b. Violations or possible violations of laws or regulations whose effects should be considered for disclosure in the financial statements or as a basis for recording a loss contingency. In that regard, we specifically represent that we have not been designated as, or alleged to be, a "potentially responsible party" by the Federal Environmental Protection Agency or any equivalent state agencies in connection with any environmental contamination related to activities of the Program.
  - c. Other material liabilities or gain or loss contingencies that are required to be accrued or disclosed by the Contingencies Topic of the FASB Accounting Standards Codification and/or GASB Statement No. 10, and we have not consulted a lawyer concerning litigation, claims, or assessments.
17. We are not aware of any pending or threatened litigation, claims, or assessments, or unasserted claims or assessments that are required to be accrued or disclosed in the financial statements in accordance with the Contingencies Topic of the FASB Accounting Standards Codification and/or GASB Statement No. 10, and we have not consulted a lawyer concerning litigation, claims, or assessments.
18. We have no direct or indirect, legal or moral, obligation for any debt of any organization, public or private that is not disclosed in the financial statements.
19. We have satisfactory title to all owned assets.
20. We have complied with all aspects of contractual agreements that would have a material effect on the financial statements in the event of noncompliance.
21. We are not aware of any significant deficiencies or material weaknesses in internal control that should be reported. We are responsible for establishing and maintaining effective internal control over financial reporting.

In connection with your audit, conducted in accordance with *Government Auditing Standards*, we confirm:

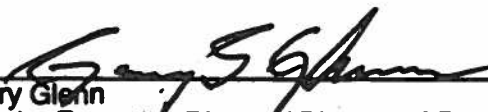
- 1. We are responsible for:
  - a. Compliance with the laws, regulations, and provisions of contracts and grant agreements applicable to the Program.
  - b. Establishing and maintaining effective internal control over financial reporting.
- 2. We have identified and disclosed to you:
  - a. All laws, regulations, and provisions of the Program *Guidelines* that have a direct and material effect on the determinations of financial statement amounts or other financial data significant to audit objectives.
  - b. Violations (and possible violations) of laws, regulations, and provisions of the Program *Guidelines* whose effects should be considered for disclosure in the auditor's report on noncompliance.

3. We have taken timely and appropriate steps to remedy violations of provisions of the Program *Guidelines* that have been reported.
4. We have a process to track the status of audit findings and recommendations.
5. We have identified for you previous financial audits, attestation engagements, performance audits, or other studies related to the objectives of the audit being undertaken and the corrective action taken to address significant findings and recommendations.
6. We have provided you with our views on your reported findings, conclusions, and recommendations, as well as our planned corrective actions for the report.
7. We have reviewed, approved, and take full responsibility for the financial statements and related notes and acknowledge the auditor's role in the preparation of this information.

We are responsible for determining that significant events or transactions that have occurred since the balance sheet date and through October 30, 2015, have been recognized or disclosed in the financial statements. No events or transactions other than those disclosed in the financial statements have occurred subsequent to the balance sheet date and through October 30, 2015, that would require recognition or disclosure in the financial statements. We further represent that as of October 30, 2015, the financial statements were complete in a form and format that complied with accounting principles generally accepted in the United States of America, and all approvals necessary for issuance of the financial statements had been obtained.

During the course of your audits, you may have accumulated records containing data which should be reflected in our books and records. All such data have been so reflected. Accordingly, copies of such records in your possession are no longer needed by us.

**SOUTH CAROLINA CENTERS OF ECONOMIC EXCELLENCE**

  
\_\_\_\_\_  
Gary Glenn  
Interim Executive Director/ Director of Finance  
SC Commission on Higher Education  
Date Signed 11-20-2015

October 30, 2015

Derrick, Stubbs & Stith, L.L.P.  
Post Office Box 36  
Columbia, South Carolina 29202

In connection with your audit of the financial statements of the South Carolina Centers of Economic Excellence (the Program) as it relates to Clemson University (the University) for the year ended June 30, 2015, we confirm that we are responsible for the fair presentation of the statements of program revenues and expenditures in conformity with accounting principles generally accepted in the United States of America.

We confirm to the best of our knowledge and belief, as of October 30, 2015, the following representations made to you during your audit.

**Finance and Operations**

Clemson University  
G06 Sikes Hall  
Box 345302  
Clemson, SC  
29634-5302

P 864-656-2421  
F 864-656-2008

1. The financial statements referred to above are fairly presented in conformity with accounting principles generally accepted in the United States of America.
2. We have identified for you all organizations that are a part of this reporting entity or with which we have a relationship, as these organizations are defined in Section 2100 of the Governmental Accounting Standards Board's Codification of Government Accounting and Financial Reporting Standards, that are:
  - a. Component Units.
  - b. Other organizations for which the nature and significance of their relationship with the Program are such that exclusion would cause the reporting entity's financial statements to be misleading or incomplete.
  - c. Jointly governed organizations in which we participated.
3. We have identified for you all funds and governmental functions related to the Program.
4. All transactions and balances of funds that have been generated by the Program have been accurately reported to you by both the University and the Clemson University Foundation.
5. We have properly classified all funds and activities related to the Program.
6. We are responsible for compliance with laws and regulations applicable to the Program including adopting, approving, and amending budgets.
7. We have identified and disclosed to you all laws and regulations that have a direct and material effect on the determination of financial statement amounts including legal and contractual provisions for reporting specific activities.
8. We have made available to you:
  - a. All financial records and related data of all funds and account groups related to the Program, including those of all special funds, programs, departments, projects, activities, etc., in existence at any time during the period covered by your audit.

- b. All communications from grantors, lenders, other funding sources or regulatory agencies concerning noncompliance with:
    - (1) Statutory, regulatory or contractual provisions or requirements.
    - (2) Financial reporting practices that could have a material effect on the financial statements.
- 9. We have no knowledge of fraud or suspected fraud affecting the Program involving:
  - a. Management.
  - b. Employees who have significant roles in the internal control, or
  - c. Others where the fraud could have a material effect on the financial statements.
- 10. We acknowledge or responsibility for the design and implementation of programs and controls to provide reasonable assurance that fraud is prevented and detected.
- 11. We have no knowledge of any allegations of fraud or suspected fraud affecting the Program received in communications from employees, former employees, analysts, regulators, short sellers or others.
- 12. We are aware of no significant deficiencies, including material weaknesses, in the design or operation of internal controls that could adversely affect the Program's ability to record process, summarize, and report financial data.
- 13. There have been no communications from regulatory agencies concerning noncompliance with, or deficiencies in, financial reporting practices related to the Program.
- 14. We have no plans or intentions that may materially affect the carrying value or classification of assets and liabilities created by the Program.
- 15. The following, if applicable, have been properly reflected and/or disclosed in the financial statements:
  - a. Related party transactions and joint ventures in which the Program participates, as defined in Section 2100 of the Governmental Accounting Standards Board's Codification of Governmental Accounting and Financial Reporting Standards, and interfund transactions, including interfund accounts and advances receivable and payable, sale and purchase transactions, interfund transfers, long-term loans, leasing arrangements and guarantees, all of which have been recorded in accordance with the economic substance of the transaction and appropriately classified and reported.
  - b. Guarantees, whether written or oral, under which the Program is contingently liable.
  - c. Arrangements with financial institutions involving compensating balances or other arrangements involving restrictions on cash balances and line of credit or similar arrangements.

- d. Line of credit or similar arrangements
  - e. Agreements to repurchase assets previously sold.
  - f. Security agreements in effect under the Uniform Commercial Code.
  - g. Any other liens or encumbrances on assets or revenues or any assets or revenues which were pledged as collateral for any liability or which were subordinated in any way.
  - h. The fair value of investments.
  - i. Amounts of contractual obligations for plant construction and purchase of real property or equipment not included in the liabilities or encumbrances recorded on the books.
  - j. Any liabilities which are subordinated in any way to any other actual or possible liabilities.
  - k. All leases and material amounts of rental obligations under long-term leases.
  - l. All significant estimates and material concentrations known to management which are required to be disclosed in accordance with the Risks and Uncertainties Topic of the FASB Accounting Standards Codification. Significant estimates are estimates at the balance sheet date which could change materially within the next year. Concentrations refer to volumes of business, revenues, available sources of supply, or markets for which events could occur which would significantly disrupt normal finances within the next year.
  - m. Deposits and investment securities category of custodial credit risk.
16. We are responsible for making the accounting estimates included in the financial statements. Those estimates reflect our judgment based on our knowledge and experience about past and current events and our assumptions about conditions we expect to exist and courses of action we expect to take. In that regard, adequate provisions have been made:
- a. To reduce receivables to their estimated net collectible amounts.
  - b. To reduce investments, intangibles, and other assets which have permanently declined in value to their realizable values.
  - c. For risk retention, including uninsured losses or loss retentions (deductibles) attributable to events occurring through June 30, 2015 and/or for expected retroactive insurance premium adjustments applicable to periods through June 30, 2015.
  - d. For any material loss to be sustained in the fulfillment of, or from the inability to fulfill, any service commitments.
  - e. For any material loss to be sustained as a result of purchase commitments.
  - f. For environmental clean up obligations.
17. There are no:
- a. Material transactions that have not been properly recorded in the accounting records underlying the financial statements.
  - b. Violations or possible violations of laws or regulations whose effects should be considered for disclosure in the financial statements or as a basis for recording a loss contingency. In that regard, we specifically represent that we have not been designated



as, or alleged to be, a "potentially responsible party" by the Federal Environmental Protection Agency or any equivalent state agencies in connection with any environmental contamination related to activities of the Program.

- c. Other material liabilities or gain or loss contingencies that are required to be accrued or disclosed by the Contingencies Topic of the FASB Accounting Standards Codification and/or GASB Statement No. 10, and we have not consulted a lawyer concerning litigation, claims, or assessments.
- 18. We are not aware of any pending or threatened litigation, claims, or assessments, or unasserted claims or assessments that are required to be accrued or disclosed in the financial statements in accordance with the Contingencies Topic of the FASB Accounting Standards Codification and/or GASB Statement No. 10, and we have not consulted a lawyer concerning litigation, claims, or assessments.
  - 19. We have no direct or indirect, legal or moral, obligation for any debt of any organization, public or private that is not disclosed in the financial statements.
  - 20. We have satisfactory title to all owned assets.
  - 21. We have complied with all aspects of contractual agreements that would have a material effect on the financial statements in the event of noncompliance.
  - 22. We are not aware of any significant deficiencies or material weaknesses in internal control that should be reported. We are responsible for establishing and maintaining effective internal control over financial reporting.

In connection with your audit, conducted in accordance with *Government Auditing Standards*, we confirm:


- 1. We are responsible for:
  - a. Compliance with the laws, regulations, and provisions of contracts and grant agreements applicable to the Program.
  - b. Establishing and maintaining effective internal control over financial reporting.
- 2. We have identified and disclosed to you:
  - a. All laws, regulations, and provisions of the Program *Guidelines* that have a direct and material effect on the determinations of financial statement amounts or other financial data significant to audit objectives.
  - b. Violations (and possible violations) of laws, regulations, and provisions of the Program *Guidelines* whose effects should be considered for disclosure in the auditor's report on noncompliance.

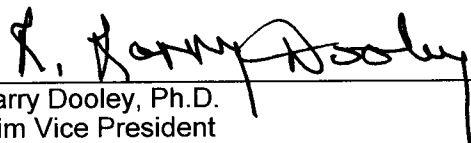
3. We have taken timely and appropriate steps to remedy violations of provisions of the Program *Guidelines* that have been reported, if any.
4. We have a process to track the status of audit finding and recommendations.
5. We have identified for you previous financial audits, attestation engagements, performance audits, or other studies related to the objectives of the audit being undertaken and the corrective action taken to address significant findings and recommendations.
6. We have reviewed, approved, and take full responsibility for the financial statements and related notes and acknowledge the auditor's role in the preparation of this information.

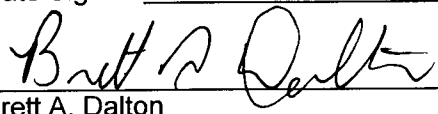
We are responsible for determining that significant events or transactions that have occurred since the balance sheet date and through October 30, 2015, have been recognized or disclosed in the financial statements. No events or transactions other than those disclosed in the financial statements have occurred subsequent to the balance sheet date and through October 30, 2015, that would require recognition or disclosure in the financial statements. We further represent that as of October 30, 2015, the financial statements were complete in a form and format that complied with accounting principles generally accepted in the United States of America, and all approvals necessary for issuance of the financial statements had been obtained.

During the course of your audits, you may have accumulated records containing data which should be reflected in our books and records. All such data have been so reflected. Accordingly, copies of such records in your possession are no longer needed by us.

CLEMSON UNIVERSITY

  
James P. Clements, Ph.D.  
President  
Date Signed 11-4-15

 11/3/15  
R. Larry Dooley, Ph.D.  
Interim Vice President  
Research  
Date Signed \_\_\_\_\_

  
Brett A. Dalton  
Vice President  
Finance and Operations  
Date Signed 11-2-15



**Kathleen T. Brady, MD, PhD**

*Associate Provost, Clinical and Translational Science  
Interim Associate Provost, Research*

**Colcock Hall**

179 Ashley Avenue  
MSC 001  
Charleston, SC 29425-0010  
Office (843) 792-4333  
Fax (843) 792.8827  
bradyk@musc.edu

October 30, 2015

Derrick, Stubbs & Stith, L.L.P.  
Post Office Box 36  
Columbia, South Carolina 29202

In connection with your audit of the financial statements of the South Carolina Centers of Economic Excellence (the Program) as it relates to the Medical University of South Carolina (the University) for the year ended June 30, 2015, we confirm that we are responsible for the fair presentation of the statements of program revenues and expenditures in conformity with accounting principles generally accepted in the United States of America.

We confirm to the best of our knowledge and belief, as of October 30, 2015, the following representations made to you during your audit.

1. The financial statements referred to above are fairly presented in conformity with accounting principles generally accepted in the United States of America.
2. We have identified for you all organizations that are a part of this reporting entity or with which we have a relationship, as these organizations are defined in Section 2100 of the Governmental Accounting Standards Board's Codification of Government Accounting and Financial Reporting Standards, that are:
  - a. Component Units.
  - b. Other organizations for which the nature and significance of their relationship with the Program are such that exclusion would cause the reporting entity's financial statements to be misleading or incomplete.
  - c. Jointly governed organizations in which we participated.
3. We have identified for you all funds and governmental functions related to the Program.
4. All transactions and balances of funds that have been generated by the Program have been accurately reported to you by both the University and the Medical University of South Carolina Foundation.
5. We have properly classified all funds and activities related to the Program.
6. We are responsible for compliance with laws and regulations applicable to the Program including adopting, approving, and amending budgets.
7. We have identified and disclosed to you all laws and regulations that have a direct and material effect on the determination of financial statement amounts including legal and contractual provisions for reporting specific activities.
8. We have made available to you:
  - a. All financial records and related data of all funds and account groups related to the Program, including those of all special funds, programs, departments, projects, activities, etc., in existence at any time during the period covered by your audit.
  - b. All communications from grantors, lenders, other funding sources or regulatory agencies concerning noncompliance with:
    - (1) Statutory, regulatory or contractual provisions or requirements.
    - (2) Financial reporting practices that could have a material effect on the financial statements.
9. We have no knowledge of fraud or suspected fraud affecting the Program involving:
  - a. Management.
  - b. Employees who have significant roles in the internal control, or
  - c. Others where the fraud could have a material effect on the financial statements.
10. We acknowledge our responsibility for the design and implementation of programs and controls to provide reasonable assurance that fraud is prevented and detected.
11. We have no knowledge of any allegations of fraud or suspected fraud affecting the Program received in communications from employees, former employees, analysts, regulators, short sellers or others.
12. We are aware of no significant deficiencies, including material weaknesses, in the design or operation of internal controls that could adversely affect the Program's ability to record process, summarize, and report financial data.
13. There have been no communications from regulatory agencies concerning noncompliance with, or deficiencies in, financial reporting practices related to the Program.
14. We have no plans or intentions that may materially affect the carrying value or classification of assets and liabilities created by the Program.

15. The following, if applicable, have been properly reflected and/or disclosed in the financial statements:
- Related party transactions and joint ventures in which the Program participates, as defined in Section 2100 of the Governmental Accounting Standards Board's Codification of Governmental Accounting and Financial Reporting Standards, and interfund transactions, including interfund accounts and advances receivable and payable, sale and purchase transactions, interfund transfers, long-term loans, leasing arrangements and guarantees, all of which have been recorded in accordance with the economic substance of the transaction and appropriately classified and reported.
  - Guarantees, whether written or oral, under which the Program is contingently liable.
  - Arrangements with financial institutions involving compensating balances or other arrangements involving restrictions on cash balances and line of credit or similar arrangements.
  - Line of credit or similar arrangements
  - Agreements to repurchase assets previously sold.
  - Security agreements in effect under the Uniform Commercial Code.
  - Any other liens or encumbrances on assets or revenues or any assets or revenues which were pledged as collateral for any liability or which were subordinated in any way.
  - The fair value of investments.
  - Amounts of contractual obligations for plant construction and purchase of real property or equipment not included in the liabilities or encumbrances recorded on the books.
  - Any liabilities which are subordinated in any way to any other actual or possible liabilities.
  - All leases and material amounts of rental obligations under long-term leases.
  - All significant estimates and material concentrations known to management which are required to be disclosed in accordance with the Risks and Uncertainties Topic of the FASB Accounting Standards Codification. Significant estimates are estimates at the balance sheet date which could change materially within the next year. Concentrations refer to volumes of business, revenues, available sources of supply, or markets for which events could occur which would significantly disrupt normal finances within the next year.
  - Deposits and investment securities category of custodial credit risk.
16. We are responsible for making the accounting estimates included in the financial statements. Those estimates reflect our judgment based on our knowledge and experience about past and current events and our assumptions about conditions we expect to exist and courses of action we expect to take. In that regard, adequate provisions have been made:
- To reduce receivables to their estimated net collectible amounts.
  - To reduce investments, intangibles, and other assets which have permanently declined in value to their realizable values.
  - For risk retention, including uninsured losses or loss retentions (deductibles) attributable to events occurring through June 30, 2015 and/or for expected retroactive insurance premium adjustments applicable to periods through June 30, 2015.
  - For any material loss to be sustained in the fulfillment of, or from the inability to fulfill, any service commitments.
  - For any material loss to be sustained as a result of purchase commitments.
  - For environmental clean up obligations.
17. There are no:
- Material transactions that have not been properly recorded in the accounting records underlying the financial statements.
  - Violations or possible violations of laws or regulations whose effects should be considered for disclosure in the financial statements or as a basis for recording a loss contingency. In that regard, we specifically represent that we have not been designated as, or alleged to be, a "potentially responsible party" by the Federal Environmental Protection Agency or any equivalent state agencies in connection with any environmental contamination related to activities of the Program.
  - Other material liabilities or gain or loss contingencies that are required to be accrued or disclosed by the Contingencies Topic of the FASB Accounting Standards Codification and/or GASB Statement No. 10, and we have not consulted a lawyer concerning litigation, claims, or assessments.
18. We are not aware of any pending or threatened litigation, claims, or assessments, or unasserted claims or assessments that are required to be accrued or disclosed in the financial statements in accordance with the Contingencies Topic of the FASB Accounting Standards Codification and/or GASB Statement No. 10, and we have not consulted a lawyer concerning litigation, claims, or assessments.
19. We have no direct or indirect, legal or moral, obligation for any debt of any organization, public or private that is not disclosed in the financial statements.
20. We have satisfactory title to all owned assets.
21. We have complied with all aspects of contractual agreements that would have a material effect on the financial statements in the event of noncompliance.
22. We are not aware of any significant deficiencies or material weaknesses in internal control that should be reported. We are responsible for establishing and maintaining effective internal control over financial reporting.

In connection with your audit, conducted in accordance with *Government Auditing Standards*, we confirm:

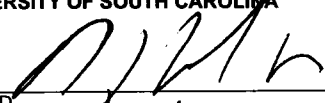
- We are responsible for:
  - Compliance with the laws, regulations, and provisions of contracts and grant agreements applicable to the Program.
  - Establishing and maintaining effective internal control over financial reporting.
- We have identified and disclosed to you:
  - All laws, regulations, and provisions of the Program *Guidelines* that have a direct and material effect on the determinations of financial statement amounts or other financial data significant to audit objectives.
  - Violations (and possible violations) of laws, regulations, and provisions of the Program *Guidelines* whose effects should be considered for disclosure in the auditor's report on noncompliance.
- We have taken timely and appropriate steps to remedy violations of provisions of the Program *Guidelines* that have been reported.

4. We have a process to track the status of audit findings and recommendations.
5. We have identified for you previous financial audits, attestation engagements, performance audits, or other studies related to the objectives of the audit being undertaken and the corrective action taken to address significant findings and recommendations.
6. We have provided you with our views on your reported findings, conclusions, and recommendations, as well as our planned corrective actions for the report.
7. We have reviewed, approved, and take full responsibility for the financial statements and related notes and acknowledge the auditor's role in the preparation of this information.

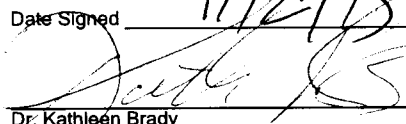
We are responsible for determining that significant events or transactions that have occurred since the balance sheet date and through October 30, 2015, have been recognized or disclosed in the financial statements. No events or transactions other than those disclosed in the financial statements have occurred subsequent to the balance sheet date and through October 30, 2015, that would require recognition or disclosure in the financial statements. We further represent that as of October 30, 2015, the financial statements were complete in a form and format that complied with accounting principles generally accepted in the United States of America, and all approvals necessary for issuance of the financial statements had been obtained.

During the course of your audits, you may have accumulated records containing data which should be reflected in our books and records. All such data have been so reflected. Accordingly, copies of such records in your possession are no longer needed by us.

**MEDICAL UNIVERSITY OF SOUTH CAROLINA**

  
\_\_\_\_\_  
David J. Cole, M.D.  
President

Date Signed 11/2/15

  
\_\_\_\_\_  
Dr. Kathleen Brady  
Interim Associate Provost for Research

Date Signed 11/2/15





UNIVERSITY OF  
**SOUTH CAROLINA**  
October 30, 2015

Derrick, Stubbs & Stith, L.L.P.  
Post Office Box 36  
Columbia, South Carolina 29202

In connection with your audit of the financial statements of the South Carolina Centers of Economic Excellence (the Program) as it relates to the University of South Carolina (the University) for the year ended June 30, 2015, we confirm that we are responsible for the fair presentation of the statements of program revenues and expenditures in conformity with accounting principles generally accepted in the United States of America.

We confirm to the best of our knowledge and belief, as of October 30, 2015, the following representations made to you during your audit.

1. The financial statements referred to above are fairly presented in conformity with accounting principles generally accepted in the United States of America.
2. We have identified for you all organizations that are a part of this reporting entity or with which we have a relationship, as these organizations are defined in Section 2100 of the Governmental Accounting Standards Board's Codification of Government Accounting and Financial Reporting Standards, that are:
  - a. Component Units.
  - b. Other organizations for which the nature and significance of their relationship with the Program are such that exclusion would cause the reporting entity's financial statements to be misleading or incomplete.
  - c. Jointly governed organizations in which we participated.
3. We have identified for you all funds and governmental functions related to the Program.
4. All transactions and balances of funds that have been generated by the Program have been accurately reported to you by the University, the University of South Carolina Development Foundation, the University of South Carolina Educational Foundation, and the University of South Carolina Research Foundation.
5. We have properly classified all funds and activities related to the Program.
6. We are responsible for compliance with laws and regulations applicable to the Program including adopting, approving, and amending budgets.
7. We have identified and disclosed to you all laws and regulations that have a direct and material effect on the determination of financial statement amounts including legal and contractual provisions for reporting specific activities.
8. We have made available to you:
  - a. All financial records and related data of all funds and account groups related to the Program, including those of all special funds, programs, departments, projects, activities, etc., in existence at any time during the period covered by your audit.
  - b. All communications from grantors, lenders, other funding sources or regulatory agencies concerning noncompliance with:
    - (1) Statutory, regulatory or contractual provisions or requirements.
    - (2) Financial reporting practices that could have a material effect on the financial statements.

9. We have no knowledge of fraud or suspected fraud affecting the Program involving:
  - a. Management.
  - b. Employees who have significant roles in the internal control, or
  - c. Others where the fraud could have a material effect on the financial statements.
10. We acknowledge or responsibility for the design and implementation of programs and controls to provide reasonable assurance that fraud is prevented and detected.
11. We have no knowledge of any allegations of fraud or suspected fraud affecting the Program received in communications from employees, former employees, analysts, regulators, short sellers or others.
12. We are aware of no significant deficiencies, including material weaknesses, in the design or operation of internal controls that could adversely affect the Program's ability to record process, summarize, and report financial data.
13. There have been no communications from regulatory agencies concerning noncompliance with, or deficiencies in, financial reporting practices related to the Program.
14. We have no plans or intentions that may materially affect the carrying value or classification of assets and liabilities created by the Program.
15. The following, if applicable, have been properly reflected and/or disclosed in the financial statements:
  - a. Related party transactions and joint ventures in which the Program participates, as defined in Section 2100 of the Governmental Accounting Standards Board's Codification of Governmental Accounting and Financial Reporting Standards, and interfund transactions, including interfund accounts and advances receivable and payable, sale and purchase transactions, interfund transfers, long-term loans, leasing arrangements and guarantees, all of which have been recorded in accordance with the economic substance of the transaction and appropriately classified and reported.
  - b. Guarantees, whether written or oral, under which the Program is contingently liable.
  - c. Arrangements with financial institutions involving compensating balances or other arrangements involving restrictions on cash balances and line of credit or similar arrangements.
  - d. Line of credit or similar arrangements
  - e. Agreements to repurchase assets previously sold.
  - f. Security agreements in effect under the Uniform Commercial Code.
  - g. Any other liens or encumbrances on assets or revenues or any assets or revenues which were pledged as collateral for any liability or which were subordinated in any way.
  - h. The fair value of investments.
  - i. Amounts of contractual obligations for plant construction and purchase of real property or equipment not included in the liabilities or encumbrances recorded on the books.
  - j. Any liabilities which are subordinated in any way to any other actual or possible liabilities.
  - k. All leases and material amounts of rental obligations under long-term leases.
  - l. All significant estimates and material concentrations known to management which are required to be disclosed in accordance with the Risks and Uncertainties Topic of the FASB Accounting Standards Codification. Significant estimates are estimates at the balance sheet date which could change materially within the next year. Concentrations refer to volumes of business, revenues, available sources of supply, or markets for which events could occur which would significantly disrupt normal finances within the next year.
  - m. Deposits and investment securities category of custodial credit risk.
16. We are responsible for making the accounting estimates included in the financial statements. Those estimates reflect our judgment based on our knowledge and experience about past and current events and our assumptions about conditions we expect to exits and courses of action we expect to take. In that regard, adequate provisions have been made:
  - a. To reduce receivables to their estimated net collectible amounts.
  - b. To reduce investments, intangibles, and other assets which have permanently declined in value to their realizable values.

- c. For risk retention, including uninsured losses or loss retentions (deductibles) attributable to events occurring through June 30, 2015 and/or for expected retroactive insurance premium adjustments applicable to periods through June 30, 2015.
- d. For any material loss to be sustained in the fulfillment of, or from the inability to fulfill, any service commitments.
- e. For any material loss to be sustained as a result of purchase commitments.
- f. For environmental clean up obligations.

17. There are no:

- a. Material transactions that have not been properly recorded in the accounting records underlying the financial statements.
- b. Violations or possible violations of laws or regulations whose effects should be considered for disclosure in the financial statements or as a basis for recording a loss contingency. In that regard, we specifically represent that we have not been designated as, or alleged to be, a "potentially responsible party" by the Federal Environmental Protection Agency or any equivalent state agencies in connection with any environmental contamination related to activities of the Program.
- c. Other material liabilities or gain or loss contingencies that are required to be accrued or disclosed by the Contingencies Topic of the FASB Accounting Standards Codification and/or GASB Statement No. 10, and we have not consulted a lawyer concerning litigation, claims, or assessments.

18. We are not aware of any pending or threatened litigation, claims, or assessments, or unasserted claims or assessments that are required to be accrued or disclosed in the financial statements in accordance with the Contingencies Topic of the FASB Accounting Standards Codification and/or GASB Statement No. 10, and we have not consulted a lawyer concerning litigation, claims, or assessments.

19. We have no direct or indirect, legal or moral, obligation for any debt of any organization, public or private that is not disclosed in the financial statements.

20. We have satisfactory title to all owned assets.

21. We have complied with all aspects of contractual agreements that would have a material effect on the financial statements in the event of noncompliance.

22. We are not aware of any significant deficiencies or material weaknesses in internal control that should be reported. We are responsible for establishing and maintaining effective internal control over financial reporting.

In connection with your audit, conducted in accordance with *Government Auditing Standards*, we confirm:

1. We are responsible for:

- a. Compliance with the laws, regulations, and provisions of contracts and grant agreements applicable to the Program.
- b. Establishing and maintaining effective internal control over financial reporting.

2. We have identified and disclosed to you:

- a. All laws, regulations, and provisions of the Program *Guidelines* that have a direct and material effect on the determinations of financial statement amounts or other financial data significant to audit objectives.
- b. Violations (and possible violations) of laws, regulations, and provisions of the Program *Guidelines* whose effects should be considered for disclosure in the auditor's report on noncompliance.

3. We have taken timely and appropriate steps to remedy violations of provisions of the Program *Guidelines* that have been reported, if any.

4. We have a process to track the status of audit findings and recommendations.
5. We have identified for you previous financial audits, attestation engagements, performance audits, or other studies related to the objectives of the audit being undertaken and the corrective action taken to address significant findings and recommendations.
6. We have provided you with our views on your reported findings, conclusions, and recommendations, as well as our planned corrective actions for the report.
7. We have reviewed, approved, and take full responsibility for the financial statements and related notes and acknowledge the auditor's role in the preparation of this information.

We are responsible for determining that significant events or transactions that have occurred since the balance sheet date and through October 30, 2015, have been recognized or disclosed in the financial statements. No events or transactions other than those disclosed in the financial statements have occurred subsequent to the balance sheet date and through October 30, 2015, that would require recognition or disclosure in the financial statements. We further represent that as of October 30, 2015, the financial statements were complete in a form and format that complied with accounting principles generally accepted in the United States of America, and all approvals necessary for issuance of the financial statements had been obtained.

During the course of your audits, you may have accumulated records containing data which should be reflected in our books and records. All such data have been so reflected. Accordingly, copies of such records in your possession are no longer needed by us.

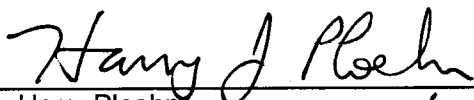
**UNIVERSITY OF SOUTH CAROLINA**



Dr. Harris Pastides

President

Date Signed 11/12/15



Dr. Harry Ploehn

Professor and Vice Provost

Date Signed 11/6/15



Mr. Edward L. Walton, CPA

Senior Vice President for Administration and Chief

Operating Officer

Date Signed 11/6/2015