

House Bioeconomic Development Study Committee

**Report of the Committee
January 31, 2008**

House Committee Services Office Georgia General Assembly

This report is submitted pursuant to the following resolution, House Resolution 662, which created the House Bioeconomic Development Study Committee, to which the members were appointed by the Speaker of the House of Representatives

Rep. Charlice Byrd, Chair

Rep. Karla Drenner

Rep. Carl Rogers

Rep. Larry O'Neal

Clifton A. Baile, Ph.D.

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HR 662: House Study Committee on Bioeconomic Development

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HR 662: House Bioeconomic Development Study Committee

Executive Summary

Georgia needs a comprehensive, strategic plan to support commercialization of advanced technologies to keep Georgia's major industries growing and ensure a prosperous future for citizens throughout the state; in urban, suburban and rural areas. Other states already have strategies in place. Georgia cannot afford to fall behind.

To date, Georgia has had a fragmented patchwork of programs with no one accountable for overall spending and no metrics for success. And worse, even within state government and the Georgia life sciences industry, these existing programs are not well known and are under-utilized.

Most other states developing a strong life sciences presence have a plan. They have invested hundreds of millions of dollars on life sciences economic development, and are reaping the rewards. Each year Georgia fails to act, it falls further and further behind.

The solution:

Establish a **Georgia Innovation Center** to leverage public-private sector partnerships to create, expand and recruit companies, build facilities and infrastructure, support workforce and managerial training, and translate state university technologies into commercial activity in Georgia.

The Center will:

- Oversee venture capital and facilities funds to generate and house the growing bioeconomy;
- Establish workforce and managerial training programs to support growth;
- Coordinate with the Department of Education on programs that improve student achievement in science;
- Pull together existing fragmented life-sciences related programs to ensure efficient use of state funds;
- Serve as the focal point, one-stop shop and face of Georgia's bioeconomic strategy;
- Establish metrics for success measured in terms of maximizing the state's return on investments.

The Center, its executive director and advisory board will be held accountable for achieving that success.

The Center and its venture capital and facilities funds will require a one-time investment over a fixed number of years. The venture capital and facilities funds will be evergreen, returning money to the state and enabling the Center and its programs to be self-sustaining.

For this solution to work, the state investment must be of sufficient scale to attract worldwide attention and enable Georgia to compete nationally and internationally for bioeconomic growth.

This solution was derived from the expert testimony of more than 50 life sciences industry executives, venture capitalists, university faculty and administrators, and leaders of state agencies.

These experts testified during five hearings last fall held by the House Bioeconomic Development Study Committee, created by HR 662.

They described a state whose assets include:

- A robust life sciences industry in healthcare, agriculture and biofuels;
- World-class universities engaged in a broad spectrum of basic life sciences research;
- U.S. Centers for Disease Control, the world's pre-eminent public health institute;
- Carter Center, a leader in public health research and agricultural biotechnology;
- Strong biomanufacturing base;
- Enviable quality of life and cost of living;
- International hubs of commerce with Atlanta's Hartsfield Jackson Airport and Savannah's Ports.

These are assets with enormous potential for growth. Yet they remain untapped.

The state needs to act. The proof is in the loss of 20th century economic successes: General Motors and Ford manufacturing plants, corporate headquarters such as Bell South and Georgia Pacific; and military bases at Forts McPherson and Gillem in Atlanta, Naval Air Station in Marietta and the Naval Supply Corps School in Athens. The uncertainty surrounding the financial services industry and Delta Airlines heighten the urgency to act now. The life sciences industry is recession proof.

Georgia needs a 21st Century plan. The focus must be on commercializing life sciences technologies. They are fundamental to the growth of human and animal healthcare, agriculture and aquaculture, bioenergy and industrial production, forestry and environmental management, **all of which are major industry sectors in Georgia.**

The global life sciences community will converge on Atlanta and Georgia for the 2009 Biotechnology Industry Organization International Convention. With a comprehensive bioeconomic development strategy in place, Georgia can showcase to the world its leadership and vision in commercializing life sciences technologies.

The future lies in innovation. Let's make sure Georgia participates.

Committee Membership

Rep. Charlice Byrd (R-20th District) – Chair

Rep. Karla Drenner (D-86th District)

Rep. Carl Rogers (R-26th District)

Rep. Larry O’Neal (R-146th District)

Clifton A. Baile, Ph.D., Professor, University of Georgia

Fabrice Egros, Ph.D., MBA, President, UCB Inc.

Russell M. Medford, M.D., Ph.D., President & CEO, AtheroGenics Inc.

Task Force Committee

Charles Craig, Georgia Bio

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Staff

Craig Foster, House Committee Services Office

Terry Long, Office of Legislative Counsel

Acknowledgements

The Committee would like to thank the following for their participation in the committee's process. To view their complete slide presentations, visit www.gabio.org.

August 21 hearing participants:

Tommy Irvin, Georgia Commissioner of Agriculture
James Sutton, Assistant Commissioner of Agriculture
Scott Angle, Dean of the College of Agriculture and Environmental Sciences,
University of Georgia
Mike Cassidy, President and CEO, Georgia Research Alliance
Kevin Schultz, Chief Scientific Officer and Global Head of Research, Meril
John Glisson, Director of the Department of Population Health, Department of
Avian Medicines, and the Poultry Diagnostic Research Center, University of
Georgia
John Pait, Senior Vice President, Business Development, Cellfor
Bo Warren, State and Local Government Relations Manager, Monsanto

September 24 hearing participants:

Robert Farris, Georgia Forestry Commission Interim Director
Nathan McClure, Director of Forest Energy and Development, Georgia Forestry
Commission
Jill Stuckey, Director of Alternative Fuels, Georgia Environmental Facilities
Authority
Gary Black, President, Georgia Agribusiness Council
Donald Childs, First Vice President, Georgia Farm Bureau
Roger Reisert, President and CEO, C2Biofuels
William Bulpitt, Georgia Institute of Technology Strategic Energy Institute
David Lee, University of Georgia Vice President for Research
Ross Harding, Vice President of Business Development, Herty Advanced
Materials Development Center
Jagdish Sheth, Professor, Emory University Goizueta Business School

October 16 hearing participants:

Sid Johnson, Director of Implementation, Commission for a New Georgia, and
Jeff Strane, Deputy Director
Bruce Roberston,, Managing Director, H.I.G. Ventures
Tom Callaway and John Richard, Managing Directors, Georgia Venture Partners
Robin Morris, Vice President of Research, Georgia State University
Ed Perkins, President, Noramco
Richard Denness, Vice President and General Manager, CNS Business Unit, UCB
David Wynes, Vice President of Research, Emory University
Charles Nawrot, Associate Vice President of Technology Transfer and Economic
Development, Medical College of Georgia
Milton Werner, Vice President of Discovery Research, Celtaxsys
Stephen Fleming, Chief Commercialization Officer, Georgia Institute of
Technology

Jim Baxter, Professor, Valdosta State University

November 15 hearing participants

Brian Williamson, Assistant Commissioner, Georgia Department of Community Affairs

Eric Tomlinson, President and CEO, Altea Therapeutics

Robert McNally, President, Cell Dynamics

Jay Yadav, Chairman and CEO, CardioMEMS

Charles Larsen, Vice Chairman, Innovation Factory

Tom Brooks, Founding Partner, Healthcare Capital Partners

William Todd, President and CEO, Georgia Cancer Coalition

Flora Tydings, President Athens Technical College

Robert Powers and Phil Gibson, Gwinnett Technical College

Jack Merritt, CEO, ICON Interventional Systems, Inc.

Bruce Smith, Executive Vice President, Strategy and Business Development, Theragenics

Mark Allen, Senior Vice Provost for Research and Innovation, Georgia Institute of Technology

December 7 Summit participants:

Laurence Downey, President and CEO, Solvay Pharmaceuticals

Barbara Boyan, Professor and Price Gilbert Jr. Chair in Tissue Engineering, Georgia Research Alliance Eminent Scholar, Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology

Ken Stewart, Commissioner, Georgia Department of Economic Development

Debra Lyons, Director, Governor's Office of Workforce Development

HR 662: House Bioeconomic Development Study Committee
Committee Overview

Introduction

House Resolution 662, adopted April 20, 2007, established the House Georgia Bioeconomic Development Study Committee. The committee is composed of four House members and three life sciences industry representatives. The members are:

Rep. Charlice Byrd (R-20th District) -- Chair
Rep. Karla Drenner (D-86th District)
Rep. Carl Rogers (R-26th District)
Rep. Larry O'Neal (R-146th District)
Clifton A. Baile, Ph.D., Professor, University of Georgia
Fabrice Egros, Ph.D., MBA, President, UCB Inc.
Russell M. Medford, M.D., Ph.D., President & CEO, AtheroGenics Inc.

Objective

The committee will seek to develop sound principles and public policy to guide the State of Georgia in designing a comprehensive life sciences economic development strategy.

The committee's final report will identify existing strengths and weaknesses and will suggest how to utilize current resources and expertise within state government more efficiently. It will suggest legislation that will serve as a road map for creating, retaining and recruiting life sciences companies, moving Georgia into a 21st century bioeconomy.

The committee also will identify opportunities presented by hosting the Biotechnology Industry Organization's BIO 2009 International Convention in Atlanta, May 17-20, 2009. This is the largest life sciences technology conference in the world and affords Georgia the opportunity to showcase to the global community the state's life sciences industry and initiatives in healthcare, agriculture, bioenergy, industrial production, forestry, environmental management and biodefense.

Committee Hearings

Four, full-day hearings were held in Room 341 at the Capitol from 8:00-3:00, followed by a summit in early December to adopt the final report and propose legislation for the 2008 session of the General Assembly. The hearings focused on the roles of industry, government, universities and public education system in supporting life sciences economic development. Each hearing was devoted to a separate sector within the life science industries.

Schedule of hearings:

August 21 – Agriculture sector
September 21 – Bioenergy and industrial production sector
October 16 – Medicine, drug development and manufacturing sector
November 15 – Medical device sector

Summit

The Summit was the final hearing, held December 7. All those who participated in the hearings were invited to attend and comment on the committees findings and proposed legislation.

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Recommendations to accelerate growth of Georgia's life sciences industry based on testimony of more than 50 experts in the agricultural biotechnology, bioenergy, biomedicine and medical device sectors.

If Georgia is serious about becoming a top-five life sciences state, it needs a clearly defined strategy supported by competitive levels of investment and sharing of risk with companies in the life sciences industry. Tax incentives and discretionary funds should be introduced or their attractiveness enhanced not only to attract new businesses, but to retain existing ones. These should not be limited to venture capital funding, but include enhanced tax relief on R&D programs. Discretionary funds for start-up costs and tax-relief to the ongoing operation.

When a clear strategy is in place, Georgia will need to support it with an extensive communications strategy and proactive business development approach, In other words, go out and look for business rather than hope that it will come to you.

The goal is for Georgia to become No. 3 or No. 4 in 10 years in life sciences development behind only California and Massachusetts.

Establish a Biotechnology Enterprise Center:

A state funded, privately managed entrepreneurial center for business formation, recruitment and growth acceleration initiatives.

Mission will be to provide long-term economic and societal benefits to Georgia.

It will serve as a nucleus for entrepreneurial collaboration across all sectors in which life sciences technologies are driving growth.

Provide full range of resources to support growth of promising new businesses.

Structure of Biotechnology Enterprise Center

- Attract startup CEOs to identify, assess and recruit technology teams with potential to form fundable companies;
- Assist in strategy development – product development, regulatory issues, and funding;
- Assist in identification and procurement of initial laboratory space;
- Attract startup CFOs to provide early stage financial management and funding advice;
- Provide regulatory support to assist in defining preclinical requirements;
- Provide intellectual property support to protect and maximize value of ideas from scientific and medical community;

Georgia needs a statewide, centralized commercialization center that proactively seeks licensable technologies for Georgia's industries.

Georgia employers are not aware of licensing opportunities that may be obtainable for government and university research efforts.

Multiple university websites for available technologies are infrequently access, not kept current.

It is estimated that over 50% of Georgia's university-based research goes out-of-state for commercialization.

Current government research efforts are now subject to technology transfer mandates that offer extraordinary opportunities for the companies positioned to take advantage of them.

A public private partnership that would function as a highly visible central point of contact for identifying available research, commercialization opportunities, and appropriate point of contact.

A commercialization "living room" would proactively bring researchers and industry together, encourage innovation, fuel entrepreneurial activity, build partnerships, and attract more investments to the state.

Georgia should promote the establishment, where feasible, of university-affiliated research parks that leverage our research efforts, economic development assets and the states private sector.

Need greater government and private sector programs encouraging improvements in math and science in K-12 public and private education.

Expand the Georgia BioScience seed fund and encourage private investment by matching.

Create a facilities infrastructure fund for fledgling companies need affordable facilities.

Help recruit top management talent to Georgia, which lacks required pool of seasoned managers.

Create a one-stop shop for industry development.

Create more incubator space for start-up companies

Keys for industry growth:

People:

Provide capital to successful Entrepreneurs to find their next opportunity;

Fund the cost of recruiting key members of management team;

Recruit companies and management teams to start their next company in Georgia;

Assist with relocation expenses to companies for key employees;

Provide access to eminent scholars and universities for clinical/preclinical studies, animal studies and use of their equipment.

Funding:

Consider a family of funds:

Opportunity Fund to provide grants for 100,000, 250,000, and 500,000 to fund intellectual property costs, technology assessment, proof of concept, building of prototypes, basic animal research, and grant writing.

Angel Fund Program that provides matching funds to investments made by Angel Groups.

Early Stage Fund to assist with Series A & B rounds alongside qualified investors; without requiring matching funds.

Late Stage Fund to take successful companies to the next level.

Facilities Fund for new space, build out of existing space and equipment.

Key Employee Fund to retain, recruit and relocate key management to a company.

Support from universities, industry and foundations for emerging companies:

From universities, support for clinical trials, research, testing, animal studies.

From local industry, support from successful CEO's to serve as mentors, boards of advisors and boards of directors.

From service providers, support from law firms, accounting firms, regulatory consultants, Quality Assurance and Quality Control advisors, reimbursement consultants, prototyping and venture capitalists.

From Foundations, support from those focused on Healthcare.

Provide assistance with SBIR, STTR, NIH & DOD grants.

Tax Incentives:

No tax on long-terms capital gains;

Tax benefit for investors and angel groups;

Allow tax adjusted plans to invest in start-ups;

Tax relief for training employees;

Tax credits for relocating to the state;

Sales tax exemptions on construction materials and equipment used in R&D and manufacturing;

Monetization of R&D tax credits, payroll withholding credits and job tax credits;

Sale of net operating loss credits;

Funding for on-site training at the company's previous location.

Develop a Georgia Venture Fund based on a state guaranteed Bond which is paid back with interest. The fund remains evergreen and continues to grow. This is a proven model that was implemented by the State of Connecticut back in 1984. They are willing to share how they successfully implemented this plan with Georgia. www.ctinnovations.com

Establish a \$100 million dollar, state-backed Venture Fund with the sole mission of investing in companies within the state.

Establish state venture capital fund:

Typical cost to fund biotech start up: \$20-50M

Investments of \$200 million to \$1 billion required to fund 10 start-ups over 3-5 years

Create multiple funding programs:

Matching funds for SBIR grants

Grants and loans for relocation of key employees

Subsidy for office and lab space

Equity investment by the state in early stage companies

Subsidize relocation costs for companies already started in other states

Create a public Venture Fund for early stage investment with \$75M to \$100M

Create an environment for the investment community to begin local fund creation, with a variety of incentives and co- investments with generous terms.

Enact larger tax incentives for existing companies to further investments in Georgia

Adopt legislation enabling the state pension fund to invest in private equity.

Establish and protect public policies that encourage bioscience research unencumbered by regulatory and fiscal policies that stifle investment, creativity and innovation.

Generate state government support for educating the public on “controversial” research efforts and techniques:

- Animals in research
- Stem cell research

Adopt harsher legislation in Georgia against animal rights activists who wage “terror” campaigns:

- Need safety and bio-security for labs and plants

Provide greater access to highly skilled workforce in bioscience and technology:

- Companies have difficulty finding higher levels of seniority and experience in fields of:
 - Biomedical research;
 - Research, Discovery, Product Development;
 - Bio manufacturing.

Improve connections between industry and scientific community:

- Networking and seminars with professionals in related fields
- Research and development collaborations that yield new product flows that help industry face mounting competitive environment

Increase continuing education opportunities:

- Existing achievements include:
 - University of Georgia (UGA) graduate certificate in Clinical Trials Design and Management
 - Athens Technical Institute Board and US Department of Labor grant with emphasis on training people to work in life sciences field.
 - UGA School of Pharmacy Regulatory Affairs program
 - Graduate certificate in Bio-manufacturing

Increase public awareness on the role biosciences and technology play in state’s economy, quality of life, and benefits these industries offer to the nation and world

Georgia must improve its global stature as a strong scientific community, as other states are actively pursuing:

- North Carolina - Research Triangle Park
- New Jersey - Pharma Corridor
- California - San Francisco / San Diego
- Kansas - Animal Health Corridor

Massachusetts – Boston / Cambridge

Generate research funds, which can be matched by industry.

Simplify university procedures for sharing intellectual property with industry.

Encourage greater support the Georgia Research Alliance, a remarkable catalyst and national model.

Establish strategies to assist with the growth of proven life science companies – financing and infrastructure

Generate a statewide reach for the Life Sciences Center of Innovation

Encourage collaborations between industry and university faculty members.

Improve recruitment of companies:

Current positives include:

- Recurring and non-recurring costs;
- Availability of a highly trainable workforce;
- Proximity to centers of excellence.

Major question marks include:

- Magnitude, quality and usefulness of incentives;
- Availability of suitable sites.

Need incentive packages:

- Incentives should be specifically designed and customized to the Life Sciences Industry to produce the desired outcome.
- They should be performance-based and have a direct correlation to the economic and fiscal benefits that the industry sector has on the overall economy.
- Incentives should be flexible so as to meet the needs of an individual project.
- Some projects may require the state to undertake risks such as purchasing and holding land in a strategic location.

2009 Biotechnology Industry Organization International Convention in Atlanta

- Showcase Georgia forest and agriculture sector as platform for opportunities;
- Showcase Georgia technology companies as success stories;
- Promote Georgia's university system as a natural partner for R&D and an educated workforce;
- Use opportunity to attract money;
- Create an event inviting Banks, VC's, private equity and hedge funds;
- Showcase Georgia's other corporations and why they are here;
- Show progress on Public VC Fund.

Bioenergy and forestry recommendations:

- Regulatory standards for gasoline in the Southeast sometimes impede the sale of gasoline-ethanol blends (E-10) by failing to accommodate changes in fuel properties that occur when ethanol is added to finished gasoline.
- The gap between R&D and demonstration scale manufacturing is large.

New technologies such as the biorefinery require larger than pilot scale to lower investment risk.

Increase Traditional Industries Program (TIP3) competitive grants funding from \$2 million per year to \$10 million per year.

Grants have funded over 100 projects in forest products, biotechnology, food, and textiles since 1995, but are too small to have meaningful impact.

Eliminate archaic property tax valuation system and go to “current use” valuation to keep forests and agriculture lands from being lost.

Research concerns:

Propose additional funding for University of Georgia, Georgia Tech, Traditional Industries Program and Herty Advanced Materials Development Center.

Provide government support of industry through developmental phase.

Create general educational campaign regarding environmental benefits of biofuels and greater support for biofuel infrastructure so that availability improves.

Compete with other states:

Tennessee - \$40 million for Pilot Plant

Florida - \$25 million for Pilot Plant

New York - \$25 million for Pilot Plant

Michigan – Demonstration Plant

Support US Department of Energy Proposals/Awards with State Funds

Adjust State Fuel Tax for E85

Adopt incentives for cellulosic ethanol with Sunset provisions, with added incentives for Georgia Based Companies

Expand Size of OneGeorgia Grants (\$100K+)

Increase university funding for Applied Research

Ensure E85 Fueling along Interstates and for state fleets

Adopt incentives for E85 Fueling Installations at Ethanol Production Areas

Support the implementation by the Georgia Environmental Facilities Authority of the renewable fuels recommendations of the State Energy Strategy.

Develop the “Georgia Biofuels Commercialization Center” to will draw in global best practices and technologies making Georgia the place to come to build world class, competitive and profitable biofuels production facilities.

Key success factors for future of bioeconomics in the state of Georgia are to target biofuel industry:

- Focus on Asia;
- Attract investment in bioeconomics;
- Shift from farm income to wealth creation;
- Invest in vocational & technical training;
- Expand agriculture extension services;
- Encourage rural entrepreneurship;
- Embrace microlending;
- Invest in information technology.

Agricultural biotechnology recommendations:

Poultry Industry:

- Poultry industry has important need for new vaccine development.
- Industry growth has produced a tremendous density of farms.
- Poultry industry is under constant threat of disease introduction from both existing diseases and exotic diseases such as avian influenza.
- Establish direct partnerships with Georgia poultry industry and Georgia vaccine industry.
- Strategic legislation and funding can help Georgia become the leader in poultry vaccine development.

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Examples of Georgia's strengths in the agricultural biotechnology, bioenergy, biomedicine and medical device sectors based on testimony of more than 50 experts

Agricultural Biotechnology

Agriculture is Georgia's largest industry:

\$55 billion economic impact.

366,000 jobs.

In two thirds of Georgia's counties, food and fiber are the single largest segment for all goods and services.

81 percent of the state is farm or forestland.

74 percent of all "metro" land is green space.

Farmers are among the earliest adopters of practical applications of biotechnology.

Virtually all cotton grown in Georgia, most of the soybeans and much of the corn is genetically modified for greater weed or insect control, resulting in reduced use of pesticides and environmentally friendly cultural practices.

Livestock producers also utilize biotechnology on their farms.

Poultry industry is the largest segment of Georgia agriculture.

Poultry – 53 percent.

Crops - 35 percent.

Livestock – 12 percent.

Georgia has 105 Counties producing more than \$1 million of poultry at the farm level.

Poultry's annual contribution to the Georgia economy now exceeds \$15.1 billion

University System of Georgia supports agriculture through:

University of Georgia

Georgia Institute of Technology

Abraham Baldwin Agricultural College

Fort Valley State University

University of Georgia College of Agriculture and Environmental Sciences is No. 1 in agricultural research among all colleges nationwide.

Georgia Department of Agriculture is a regulatory and consumer protection agency

Life sciences technology advancements have revolutionized farming:

Advances in engineering allow farmers to plant exactly a certain number of seeds per foot at an exact depth in exact rows.

Advances in plant breeding have give farmers cultivar choices that are tailored to growing conditions.

Farmers can plat anything from conventional wheat to cotton that has been genetically modified to resist pests and herbicides.

Electronic monitoring of water availability tells farmers when crops need irrigation.

Machinery is available to maximize harvest yields for everything from peanuts to blueberries.

State of Georgia's Agriculture Innovation Center:

Links scientists with businesses, maintains an incubator for fledgling companies and provides entrepreneur outreach service.

Leading Companies include:

Merial:

It employs 1,500 people in Georgia at sites in Duluth, Athens, Gainesville and Colbert, and Candler.
It is a world leading company in the research, development, and manufacture of animal health pharmaceuticals and biological vaccines.
Has a global business operating in more than 150 countries with over 5,000 employees worldwide and annual sales of \$2.2 billion.

Monsanto:

It employs 330 people in Georgia and 17,000 worldwide and is a leader in applying biotechnology to improve agriculture production.
Its DeKalb-brand corn business has facilities in Tifton, where it has sites for research and breeding of its Seminis vegetable seed and Delta and Pine Land cottonseed businesses.
Its largest site is in Augusta, where Monsanto employees 250 people.
The Augusta plant, which makes Posilac bovine somatotropin, is the largest pharmaceutical grade protein manufacturing plant in the world.
Estimated payroll is \$20 million a year and total capital investment is more than \$200 million.
It has completed a \$1.5 billion acquisition of Delta and Pine Land cottonseed company, which has a significant impact on Georgia as the third largest producer of cotton in the US.

National Bio and Agro-Defense Facility

Georgia is among five potential sites for the National Bio and Agro-Defense Facility (NBAF), a Department of Homeland Security facility with US Department of Agriculture involvement.

The \$450 million modern biocontainment research facility is a replacement for the Plum Island, NY, facility.

The purpose:

- To protect agricultural livestock and public health from emerging or deliberately introduced threats;
- To research diseases;
- Develop new strategies for vaccines and drugs;
- Provide diagnostic capability;
- Test new vaccines;

NBAF will have a major economic impact:

- 1,000 construction jobs over 3 years;
- Up to 350 permanent jobs, many to local residents;
- \$550 million wages over 20 years;
- \$1.5 billion economic impact over 20 years

Up to 500 additional community jobs
Will help attract other biomedical industries to Georgia

Bioenergy

Georgia's geographic size and climate make it an ideal location for the production of raw materials for making biofuels, such as ethanol and biodiesel. Georgia could be the "Saudi Arabia of biomass."

Georgia has abundance of raw materials, including, wood, soybean oil, canola oil, cottonseed oil, chicken fat; corn, grasses and landfill waste.

Georgia can position itself as a global leader in commercializing cellulose fuels. It has the basic forest resource, the logistics, the technical skills and industrial scale-up expertise to rapidly build a new \$5 billion industry in Georgia over the next 10 years.

10-Year deliverables:

- \$30 billion state economic impact from forestry
- 60,000 new jobs
- 20% gasoline replaced by locally produced fuels
- 30 new fuel production facilities in rural Georgia

Timber is Georgia's highest valued agricultural product, generating direct revenues of \$16 billion; total output is \$25 billion; total employees are 67,694; and total revenues to the state are \$591 million.

66 percent of Georgia's 36.8 million acres is forested and 23.8 million acres are commercial forests, the largest in the U.S.

Georgia has established **One-stop Shop** involving the following state groups to promote biofuels development:

- Environment Protection Department
- Department of Revenue
- Department of Community Affairs
- Georgia Forestry Commission
- University of Georgia
- U.S. Department of Agriculture
- State Fire Marshall's Office
- Georgia Department of Agriculture
- Department of Economic Development
- Georgia Environmental Facilities Authority
- Environment Protection Agency
- Governor's Agriculture Liaison
- Agriculture Innovation Center

Other Georgia accomplishments include:

- The state fleet has over 750 alternatively fueled vehicles;
- Some state fueling stations have CNG & propane dispensers;
- Biodiesel is available and is being used;

Legislation has been passed to reduce sales taxes on ethanol and biodiesel companies;
Universities are incubating companies that are working on alternative fuel technologies;
The State Energy Office has completed a comprehensive state energy plan;
The state has awarded grants that have moved the industry forward
Colleges and universities have gained global recognition for their researching efforts.

Existing biodiesel companies:

US Biofuels, Rome, is designed to produce more than 10 million gallons of biodiesel per year.
Soymet, Rome, is designed to produce 2 million gallons of Biodiesel per year.
Middle Georgia Biofuels, Dublin, is designed to produce 2 million gallons of biodiesel per year.
Sunshine Biofuels, Camilla, is designed to produce 4 million gallons of biodiesel per year.

Biodiesel Projects under construction:

Bulldog Biodiesel, Ellenwood, is being designed to produce 10 million gallons of biodiesel per year.
Inland Oil, Bainbridge, is being designed to produce over 10 million gallons of biodiesel per year.
Alterra Biofuels, Plains, is being designed to produce 25 million gallons or more of biodiesel per year.
Alterra Biofuels, Gordon, is being designed to produce 10 million gallons or more of biodiesel gallons per year.

Existing ethanol plants:

Windgap Farms, Baconton, produces around 500,000 gallons of ethanol from waste yeast per year.

Ethanol plants under construction

US Ethanol, Cordele, will be capable of producing 4 – 10 million gallons of ethanol per year.
First United Ethanol, Camilla, will produce 100 million gallons of corn ethanol per year.

Cellulosic ethanol plants under construction

Range Fuels, Soperton Georgia, will produce 20 – 100 million gallons of Cellulose ethanol per year.

Future for biodiesel:

By 2010, Georgia could be producing 100 million gallons per year;
More positive biodiesel legislation is very likely;
Farmers will be growing new oil crops;
Poultry producers will find new ways to generate more fat during the processing of chickens.

Future for ethanol:

By 2010 Georgia could be producing 400 million gallons per year;

More positive ethanol legislation is very likely;
Tree farmers will be selling trees to produce fuel.

University of Georgia

The US Department of Energy named three U.S. Bioenergy Research Centers in June 2007 and provided \$125 million over 5 years to each center

UGA is part of the team headed by Oak Ridge National Lab.

UGA provides scientific leadership;

Team includes unique mix of academic, federal, foundation and private partners
University of Tennessee, Dartmouth, Georgia Tech, the National
Renewal Energy Lab, Brookhaven National Lab, the Nobel Foundation,
ArborGen Corp, Diversa Corp and Mascoma Corp.

Some leading research companies and organizations

CellFor is creating a new genetic technology for reforestation.

It produces elite varietal conifer seedlings using proprietary tissue culture technology.

The company has 120 employees with locations in Atlanta, Victoria, Conway AR, Raleigh NC.

C2 Biofuels is developing cellulosic ethanol process technology.

It was established in May 2005 targeting pine feedstock for cellulosic ethanol production using biocatalyst advancements

It received two OneGeorgia matching grants and has research contracts with Georgia Tech & University of Georgia

Herty Advanced Materials Development Center

Herty Advanced Materials Development Center, a Savannah-based world leader in cellulose and fiber processing, serves as a vital resource in developing and promoting a wide range of commercial applications. Founded in 1938, Herty played a vital role in the founding and evolution of Georgia's pulp and paper industry.

In November 2007, Herty launched production at its Georgia Biofuels Commercialization Center. The facility has the capability to take full trailer loads of biomass, prepare and assay it for further work within the facility or supply it to others for research at their own pilot plants.

Biomedicine, pharmaceutical manufacturing and medical devices

Georgia industry statistics:

More than 270 companies;
15,283 private sector jobs;
\$940 million in annual wages;
\$61,500 average salary;
\$7 billion in product sales
7th largest bioscience center in the U.S.

Georgia Research Alliance

\$400 million invested from state over 15 years in university research, leveraging another \$2 billion in federal and private funds;
Research includes agriculture and bioenergy as well as biomedicine and medical devices;
Recruitment of 57 eminent scholars to state's universities, all of whom are top research scientists and leading innovators in their fields;
Assistance in establishing 22 Centers of Research Excellence at state's universities;
Development of VentureLab Program to assist in commercialization of university technologies.

Georgia Cancer Coalition:

An independent, not-for-profit organization that unites government agencies, academic institutions, civic groups, corporations and health care organizations in a concerted effort to strengthen cancer prevention, research and treatment in Georgia, with the ultimate goal of making Georgia one of the nation's premier states for cancer care.

Georgia invests a portion of its tobacco settlement dollars in the cancer initiative.

World-class research universities:

Clark Atlanta University
Emory University
Georgia Institute of Technology
Georgia State University
Medical College of Georgia
Morehouse School of Medicine
University of Georgia

International Organizations:

US Centers for Disease Control and Prevention
American cancer Society
CARE
Carter Center

Leading Companies

Johnson & Johnson (J&J), the world's largest and most comprehensive manufacturer of health care products serving the consumer, pharmaceutical and professional markets with worldwide sales of \$ 53.3 billion in 2006

Companies and groups in Georgia:

Noramco, Athens
Ethicon, Cornelia / Atlanta
J&J regional pharmaceutical sales office, Alpharetta
J&J Health Care Systems, Alpharetta
DuPuy, Atlanta and Savannah

These companies:

Have employees and retirees totaling 2,105, with a payroll of \$67.5 million.

J&J employment in Georgia generates another 4,600 regional jobs, with a payroll of \$214 million

Solvay is an international company with 29,000 employees worldwide and 2006 revenues of \$12 billion.

Solvay Pharmaceuticals Inc, is the US subsidiary headquartered in Georgia.

It is the 32nd largest pharmaceutical company in the US with \$1.2 billion in US product sales.

It employs 1,200 nationwide with a payroll of \$65 million; adding in the chemicals and plastics activities, Solvay US employs 4,000 people nationwide with 900 in Georgia.

These 900 employees generate another 2,900 jobs in the state taking into account direct and indirect impacts on Solvay operations.

The total economic impact of Solvay's operations in Georgia over 10 years is \$11.6 billion.

UCB is an international biopharmaceutical that operates in 40 countries and employs 8,500 people worldwide, with \$4.5 billion in revenues:

It employs 565 people in Georgia and U.S. revenues exceed \$2 billion

Its primary focus is in three severe disease areas:

Central Nervous System

Inflammation

Oncology

Altea Therapeutics is a medical device company replacing needle injections for biotechnology drugs and vaccines with convenient skin patch.

It has 75 employees and has raised \$60 million in venture capital in the last five years.

It is the anchor tenant of Atlanta's Technology Enterprise Park.

It is a recipient of \$2 million from Georgia Life Sciences Facility Fund.

It estimates it will take \$350 million to \$450 million to bring products to market during next 5 years

CardioMEMS is a medical device company founded in 2000 and focused on cardiovascular diseases.

It has technology licensed from Georgia Tech and the Massachusetts Institute of Technology.

It initiated operations in Georgia tech's ATDC Incubator in 2001.

It launched its first commercial product in November 2005;

It moved to Atlanta's Technology Enterprise Park July 2007

It employs 125 employees, 85 in Georgia.

It has raised \$75 million in venture capital funding.

Its 2007 revenues were less than \$10 million.

Theragenics is a diversified medical device manufacturer, best known for TheraSeed, a radioactive implant about the size of a grain of rice that is a one-time treatment for prostate cancer.

It has annual revenues of \$60 million with 350 employees, about 130 in Georgia.

Technology came from Georgia Tech 26 years ago,

The Innovation Factory is a privately funded healthcare incubator.

It raised \$350 million for start-up companies.
It raised \$230M for Venture Fund
It started Novoste, a venture funded company that included one local venture capital fund, Noro Moseley, and held a successful IPO
It has eight companies in various stages of development:
Five launched and out of state;
Two will be launched and relocated in next six months;
Two are in process of funding.

Celtaxsys was founded in 2005 with a focus on chemokine-mediated immune cell migration. Originally organized around technology licensed from the Massachusetts General Hospital and Harvard Medical School, Celtaxsys has grown beyond this license to develop a unique discovery platform that has identified and characterized novel mechanisms of immune cell migration that are unrelated to chemokines themselves. Celtaxsys is defining new biology in the area of immune cell chemotaxis.

State support:

Department of Community Affairs facilities funds
Life Sciences Facilities Fund (LSFF):
LSFF capitalization at \$13.5 million;
Current available balance is \$8.5 million
Strategic Industries Loan Fund:
Current available balance is \$9.2 million

Bio-seed fund

Bundle of State incentives includes:
Industrial revenue bonds
Job tax credits
Investment tax credits
Headquarters tax credit
R&D tax credits
Employee retraining tax credits
Sales & use tax exemptions for manufacturing
Childcare credit

Comments on Georgia's Business Environment and Quality of Life

Employees enjoy living, working and raising families in Georgia.

Biggest selling points are quality of life, amenities, climate, cost of living and Hartsfield-Jackson International Airport. Once employees are attracted here the positive quality of life is a strong retention tool.

House Bioeconomic Development Study Committee

Other States' Programs

In 2006, Georgia ranked No. 7 in the nation in number of biotech companies as ranked by Ernst & Young. Below is a comparison of select life sciences economic development initiatives in the six states ranked above Georgia. They are in order, California, Massachusetts, North Carolina, Maryland, New Jersey and Pennsylvania.

California

California voters approved Proposition 71 in 2004 with 59 percent of the vote, creating the **California Institute of Regenerative Medicine (CIRM)**. The referendum authorized \$3 billion in bond funding that would finance an annual competitive grant program over 10 years.

During 2005, CIRM mounted a competition for its headquarters site, won by San Francisco, which contributed a rent-free office building at the Mission Bay development district. Implementation of the CIRM grant program is currently delayed by litigation. The University of California (UC) system continued to roll out its **Institutes for Science and Innovation**, two of which have bioscience components.

The Cal Institutes, each financed by \$100 million in bonds backed by incremental indirect cost recovery, are expected to focus interdisciplinary research on topics of interest to the state's industrial community with potential of creating the next generation of high growth companies. The state financing must be matched 2:1 by industry and 5 percent may be used to seed operation.

Massachusetts

In July 2007, Governor Deval Patrick, joined by legislative leaders at a special Joint Session of the Legislature, filed legislation providing for a major investment in and expansion of the Life Sciences industry in Massachusetts. The legislation is a comprehensive plan to make Massachusetts the global leader in the life sciences industry.

The plan is a significant milestone in moving forward on the administration's 10-year, \$1 billion investment package that will both enhance the Commonwealth's already nationally recognized assets in the fields of medicine and science, and fill gaps in federal funding to strengthen the state's capacity to support life science progress from the idea stage through the production and commercialization stages.

The legislation includes \$500 million in capital funds that will allow for the creation and construction of the Massachusetts Stem Cell Bank and an RNAi center that will highlight and build on the work of Nobel Laureate Craig Mello, Ph.D of the University of Massachusetts Medical School. The Bank will be the world's largest repository of new stem cell lines available to all sectors, both public and private, of the life sciences sector.

The bill also includes \$15 million for the Massachusetts Life Sciences Investment Fund to finance basic research, small business innovation grants, life science fellowships and workforce training. The fund will be overseen by a strengthened Life Sciences Center Board, which, under the legislation, would be expanded to include two new members and would be chaired by the

Secretary of Housing and Economic Development. Under Governor Patrick's legislation, the center would have the authority to build capital projects, award grants, and expend funds consistent with the plan outlined by the Governor. The board will be required to establish a formal process to determine how capital projects are spent.

The legislation also establishes a 10-person Advisory Committee to the Life Sciences Center Board from members of the Massachusetts Life Sciences Collaborative.

To encourage job creation and growth in the field, the legislation also creates tax incentives for certified life science sector projects. Among the credits are a redeemable 10 percent 10-year carry-forward Life Sciences Investment Incentive Tax Credit and a provision that allows projects to receive an additional 2 percent tax credit if they locate in Economic Opportunity Areas. The legislation includes a claw-back provision to ensure that companies meet their job creation goals. The bill also creates a sales tax pass through for bricks and mortar purchases associated with the development of life sciences projects and creates a 100 percent refundable FDA User Fee Credit.

The bill imposes a yearly project evaluation and provides for decertification in the event that a company fails to achieve the projected return on investment mandated as part of the project certification.

North Carolina

North Carolina's 2007 General Assembly approved a state budget in early August with expanded spending for research, facilities and commercialization programs for a host of life science-related technologies. The state allocated more than \$120 million over the next two fiscal years.

Key items include:

- \$3 million in funding for the North Carolina Biotechnology Center's Centers of Innovation program, a new initiative designed to accelerate commercialization of biotechnology-related technologies across North Carolina.
- \$4.83 million in additional funding for North Carolina's new SBIR/STTR matching grant program, the One North Carolina Small Business Fund.
- \$27 million over 2007-2009 for the North Carolina Research Campus at Kannapolis, including \$8.5 million in annually recurring funding for university research operations.
- \$1 million in expansion funding for North Carolina Central University's drug and process development teaching programs at the Biomanufacturing Research Institute and Training Enterprise. The appropriation is the last installment of a four-year ramp-up of funding for the Biomanufacturing and Pharmaceutical Training Consortium.
- \$12 million in non-recurring funding over the 2007-09 biennium for Wake Forest University's Institute for Regenerative Medicine. The monies will be used to attract federal dollars for research into tissue engineering and other regenerative medicine technologies to address battlefield injuries of soldiers.
- \$6.5 million in non-recurring funding for biofuels research and economic development programs, including a \$5 million allocation for a new Biofuels Center of North Carolina on the new North Carolina Biofuels Campus in Oxford.
- \$25 million in FY 2007-08 and \$40 million in FY 2008-09 for cancer research at University of North Carolina institutions. Funding for the initiative is scheduled to reach \$50 million annually in 2009-10 and beyond.
- \$5 million in annually recurring funding for expansion of North Carolina State University's bioengineering program within the NCSU School of Engineering.

In 2005, North Carolina allocated \$60 million from its Golden LEAF Foundation, a nonprofit foundation that administers a major portion of the state's tobacco settlement trust funds, to develop a Biomanufacturing and Pharmaceutical Training Consortium, a network of facilities and programs at North Carolina (NC) State University in Raleigh, NC Central University in Durham, and the NC Community College System.

Maryland

Maryland offers a comprehensive set of efforts that address R&D, research facilities, commercialization, financing, tax policy, and workforce as the state seeks to create a business climate that nurtures the growth of its bioscience sector. In the proposed FY 2007 budget, Governor Robert Ehrlich added a number of new science and technology initiatives, many of which are targeted the biosciences, totaling more than \$100 million.

They include \$66 million for infrastructure and research funding, of which \$12 million is proposed in new capital funds for the Center for Regenerative Research and University of Maryland-Baltimore's (UMB's) BioPark; \$2.3 million in capital funds for a new Biological Sciences Research Building at the University of Maryland, College Park; and \$28.1 million in operating funds for the Cigarette Restitution Fund for Cancer Research.

A number of tax policy changes were made since 2004, and additional proposals are under consideration. The state's R&D tax credit was reauthorized in 2004, and a Biotechnology Investment Incentive Act was enacted in 2005. This bill created a tax credit against state income tax for individuals, corporations, and venture capital firms that invest in qualified biotechnology firms. Proposed legislation in 2006 would appropriate \$6 million in operating funds to implement the Biotechnology Tax Credit.

Also the development of new bioscience research parks in Baltimore continues to move forward. UMB completed the first of seven buildings and has a second building under way at its 8-acre BioPark; and planning continues for the East Baltimore Life Science and Technology Park, which is being developed in proximity to Johns Hopkins University.

New Jersey

In June 2007, the New Jersey legislature approved a \$450 million bond referendum to support stem cell research. The referendum will be on the ballot in this year's November elections.

The approval of the bond referendum followed six months after the state allocated \$270 million in funding to build stem cell research centers and facilities for cancer and biomedical research. The legislation authorized: **\$150 million** to build the Stem Cell Institute in New Brunswick; **\$50 million** to build stem cell research facilities at the New Jersey Institute of Technology in Newark; **\$50 million** to a biomedical research center in Camden, which will be operated by a consortium of Rutgers, the Coriell Institute for Medical Research, the Robert Wood Johnson Medical School at Camden, and the Cancer Institute of New Jersey, South Jersey; **\$10 million** to the Garden State Cancer Center, a cancer research center in Belleville; and, **\$10 million** for the Eli Katz Umbilical Cord Blood Program, in Allendale, for cord blood collection in support of stem cell research.

Under the Innovation Zone program, the New Jersey gives preference on all its various incentive programs to firms that agree to locate in zones surrounding the public research universities,

principally in Newark, the Greater New Brunswick area, and Camden. The long-term plan includes creation of actual physical facilities for commercialization and business acceleration in each of the zones.

Under the Technology Business Tax Certificate Program, New Jersey continues to allow firms that cannot use NOL or R&D tax credits because they are not yet profitable to sell these to other taxpayers for at least 75 percent of their value, subject to approval by the New Jersey Economic Development Authority. The cap for this program was raised to \$60 million annually.

Pennsylvania

In 2006, Pennsylvania created the Jonas Salk Legacy Fund, a \$500 million investment that will accelerate the rate of medical breakthroughs in Pennsylvania. In the process, it will bring hundreds of world-class researchers to Pennsylvania and create thousands of new jobs.

The Jonas Salk Legacy Fund will build on the commonwealth's strengths in biotechnology, pharmaceuticals, medical devices and research & development. The Jonas Salk Legacy Fund will support two kinds of investments:

- **Facilities and Research Infrastructure (\$400 million)** for investments in new laboratory and incubator facilities that are essential to the continued growth of the biosciences industry. Universities, academic research institutions, hospitals and economic development organizations will be eligible for “bricks & mortar” grants, with a one-to-one match for all Legacy Fund dollars. This investment in labs and facilities will create the capacity to support 12,000 new jobs.
- **“Starter Kits” (\$100 million)** to fund equipment and facilities for newly-recruited faculty to encourage them to come to Pennsylvania. Starter Kits will give Pennsylvania colleges, universities and academic medical centers a tangible edge in the highly competitive battle to attract world class scientific talent. The \$100 million Starter Kits program includes a one-to-one match requirement and will bring 400 to 600 new faculty members to Pennsylvania.

Because all grants must be matched on a dollar for dollar basis, the Jonas Salk Legacy Fund will yield \$1 billion in new investment in the biosciences. No new tax dollars or Commonwealth debt will be required for the Jonas Salk Legacy Fund. The Legacy Fund will be financed by redirecting a small portion of the state's existing tobacco settlement proceeds. Only 9.5 percent of tobacco settlement funds will be used to underwrite the bonds, leaving 90.5 percent available for other uses. By securitizing these dollars, Pennsylvania will accelerate the rate of scientific discovery and solidify Pennsylvania's position in the biosciences.

The Jonas Salk Legacy Fund will be guided by an independent team of scientists and professionals from across the life sciences industry. In accordance with current law, no funds will be used for embryonic stem cell research in Pennsylvania.

In 2005, A Pennsylvania Biosciences Continuum strategy was released in 2005 by the state Department of Community and Economic Development. This strategy emphasizes creating connectivity among the state's research institutions, its mature pharmaceutical and bioscience companies, and emerging companies. The strategy is being implemented through several intermediary programs such as three regional Life Sciences Greenhouses, several statewide venture-capital initiatives, and various programs operated by the Ben Franklin Technology Development Authority (BFTDA).

The three Greenhouses were established with a \$100 million commitment from the state Tobacco Settlement Investment Board, matched by local communities. The Greenhouses are conceived as comprehensive centers for commercialization of bioscience research. The BioAdvance Greenhouse in Philadelphia targets bioinformatics, biopharmaceuticals, medical devices, and clinical trials. The Pittsburgh Life Sciences Greenhouse focuses on drug discovery tools and targets, tissue and organ engineering, medical devices, and therapeutic strategies for neuropsychiatric disorders. The Life Sciences Greenhouse of Central Pennsylvania targets rational drug design/delivery, biomedical devices, and bionanotechnology. In fiscal year 2006, 69 companies and 22 university-based projects were funded for a total of \$20 million, leveraging an estimated total of \$130 million in private follow-on investment.

Summary of State Incentives and Legislation for Renewable Energy Production Georgia Forestry Commission

Every State and Washington D. C. has some type of financial incentive or legislative mandate in place to support renewable energy (RE) production and/or use. Most have more than one incentive in place. Many also require the use of biofuels in state fleets.

The most common incentives are reduced sales tax on biofuels, property tax exemptions, funding assistance to install fueling equipment at stations, payments to producers based on production, and the implementation of a renewable (energy) portfolio standard (RPS).

House Resolution 662

A RESOLUTION

Creating the House Georgia Bioeconomic Development Study Committee;
and for other purposes.

WHEREAS, bioscience technologies form the foundation of a new bioeconomy and are driving innovations in healthcare, agriculture, renewable energy resources, industrial production, environmental management, and national security; and

WHEREAS, Georgia has established tremendous university research and industrial developments which are necessary to be a leader among the many states that are already constructing infrastructures for a bioeconomy; and

WHEREAS, in the twenty-first century bioeconomy race, the competition is intense for both innovative ideas and the capital and talent to commercialize them, and while Georgia has successfully built research universities that are globally competitive, the state has failed to support commercializing the technologies that spring from such valuable inspirations; and

WHEREAS, this state loses potential return on its research investment to other states that have developed plans and infrastructures to support bioeconomic development; and

WHEREAS, this state cannot afford to leave the development of a bioeconomy to chance, for each year Georgia fails to act, the state falls further behind the competition and Georgia loses its substantial investment in university research programs; and

WHEREAS, Georgia is also missing the opportunity to take advantage of its investment in its students by failing to link science with meaningful careers in Georgia and this vital human resource is often lost to other states which offer such career opportunities; and

WHEREAS, in order to maximize the return on this state's research assets, improve workforce education and attract technologies and companies from outside the state, Georgia must be an aggressive partner with the private sector; and

WHEREAS, it is predicted that improvements in Georgia's bioeconomic infrastructures would create 25,000 to 50,000 jobs in Georgia over the next 20 years; and

WHEREAS, to become a leader in the bioeconomy Georgia must unite government, industry, and universities together in a comprehensive effort, thereby tying the state's investments in university research, commercialization, and economic development to measurable improvements in job growth, increases in tax revenues, and improvements in education, health, and the overall quality of life for all of Georgia's citizens.

NOW, THEREFORE, BE IT RESOLVED BY THE HOUSE OF REPRESENTATIVES that there is created the House Georgia Bioeconomic Development Study Committee. The committee shall consist of five members representing the life sciences industry, government, and universities who shall be appointed by the Speaker of the House of Representatives. Of these five members, there shall be at least one each of the following: a member of a public or private university with experience in the area of biological research, an individual experienced in the business of bioscience technologies, and three members of the House of Representatives. The Speaker of the House of Representatives shall appoint the chairperson. Appointments shall be made by the respective appointing authorities no later than June 1, 2007. The committee shall meet at least five times per year at the call of the chairperson or upon the request of at least three of its members. At least one meeting shall be designated as a summit hosted by the committee which shall be held no later than August 2007. The bioeconomic summit shall bring together government, university, and industry leaders in an attempt to negotiate the details of enabling legislation and endorse its legislative proposals for the 2008 session of the Georgia General Assembly.

BE IT FURTHER RESOLVED that the committee shall have the following duties and responsibilities:

(1) To review the need for enabling legislation and make recommendations, if any, for improvements in existing provisions to the Georgia General Assembly;

(2) To study the need for a venture capital fund that would invest in creating, expanding, and recruiting companies and technologies in Georgia and make recommendations regarding the same;

(3) To study the need for a facilities fund for the creation of infrastructure to support bioscience industry growth and to make recommendations regarding the same;

(4) To study the need for the establishment of a commercialization institute to attract and train managerial talent, to coordinate life sciences workforce training, and to be a single point of contact for the cooperation of government, universities, and industry in building the bioeconomy and to make recommendations regarding the same;

(5) To consider the need for a state authority for bioeconomic development in Georgia which may be designated the Georgia Bioeconomic Development Authority; and

(6) To consider the need for a permanent board to oversee the operations of a Georgia Bioeconomic Development Authority.

Other matters to be considered by the committee shall include the study of public awareness of bioeconomic development, funding of an authority, support for biomedical research, legal implications such as intellectual property rights of the state and the researchers whose research is supported or funded with state funds, objective criteria for measuring increased economic activity, and funding considerations including private sources for funding.

BE IT FURTHER RESOLVED that the committee shall identify the opportunities presented by BIO 2009 International Convention as a showcase to the global community of the state's life sciences industry and

initiatives in healthcare, agriculture, bioenergy, forestry, environmental management, and national security. The committee shall develop an analysis to consider allocating sufficient funding for the state to participate in the conference and take advantage of this economic opportunity with the added goal of placing Georgia and Atlanta in a four-year rotation as host of this international convention, the largest life sciences conference in the world.

BE IT FURTHER RESOLVED that the committee may conduct such meetings at such places and at such times as it may deem necessary or convenient to enable it to exercise fully and effectively its powers, perform its duties, and accomplish the objectives and purposes of this resolution. The members of the committee shall not receive the allowances authorized for legislative members of interim legislative committees nor shall any member receive a per diem allowance or any other cost allowance or reimbursement for attending meetings or other functions or activities relating to service on the study committee. In the event the committee makes a report of its findings and recommendations, with suggestions for proposed legislation, if any, such report shall be made on or before December 31, 2007. Copies of the report shall be provided to the Speaker of the House. The committee shall stand abolished on February 15, 2008.