The Greening of Mississippi’s Economy: the Educational Services Sector

August 2011

greenjobs.mdes.ms.gov
In 2009, Mississippi and Louisiana partnered to research economic development opportunities and workforce needs associated with the region’s green economy. Through a $2.3 million grant from the U.S. Department of Labor, a consortium of the Mississippi Department of Employment Security, Mississippi State University, Louisiana Workforce Commission, and Louisiana State University conducted an extensive study of economic activity that is beneficial to the environment. This and other research products were developed as part of that effort.

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Description of Sector

The North American Industry Classification System (NAICS) describes the Educational Services sector, NAICS 61, as providing instruction and training in an array of different areas. This sector includes both publically and privately owned, for profit and not-for profit schools, colleges, universities, vocational schools, and training centers. This sector is organized around services provided by teachers through diverse media in a variety of settings. In Mississippi, this sector employs 113,663 people representing 10.5 percent of total nonfarm employment.

The Mississippi Green Jobs Survey was conducted during the third and fourth quarters of 2010 as part of a comprehensive research effort to assess the greening of the Mississippi economy. Providing a baseline measure of green employment, the survey results show an estimated 17,360 primary green jobs in Mississippi across all sectors, which represent 1.6 percent of Mississippi’s nonfarm employment. An estimated 32,300 support green jobs raises the total number of jobs involved in green activity categories to 49,660 jobs or 4.6 percent of nonfarm employment. The survey found that Mississippi’s Educational Services sector accounted for 137 primary green jobs and 916 support green jobs. These survey results reveal that 0.9 percent of jobs in the Educational Services sector are green with 0.1 percent primary green jobs and 0.8 percent support green jobs.

Introduction to the Green Component of the Educational Services Sector

Beyond the primary activities of instruction and training provided by the Educational Services sector, institutions within this sector are also involved in the production of new knowledge, the development of new technology, and the enhancement of human resources through student engagement and professional development. Together, these services provide the foundation for economic growth and innovation as well as personal accomplishment and healthy democracy. This sector is particularly important as societies and economies move in new directions. The burgeoning green economy is benefiting from this sector through: the technological advances made at universities in renewable energy, energy efficiency, pollution reduction and clean up, sustainable agriculture and natural resource conservation; the technical skills and training provided by community colleges and technical schools to install, operate, or repair new technologies like solar panels or wind turbines; and the enrichment of the workforce and future workforce that emerges a

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a A primary green job is defined as one where more than 50 percent of an employee’s time is devoted to one of the seven green activity categories: renewable energy; energy efficiency; greenhouse gas reduction; pollution reduction and clean-up; recycling and waste reduction; sustainable agriculture, natural resource conservation and coastal restoration; and education, compliance, public awareness and training supporting the other categories.

b Support green jobs are defined as those essential to an organization’s involvement in one of the activity categories, but not requiring more than 50 percent of an employee’s effort.
from these institutions with the environmental knowledge needed to comprehend, interact, and pioneer in a business, social and political environment more and more conscious of sustainability. The institutions within the Educational Services sector are also going to great lengths to improve the environmental performance of their campuses and other operations. Both student and administrator-initiated, these sustainability programs are having large impacts on the environmental footprint of educational institutions.

This report will focus on the environmentally beneficial activities of the Educational Services sector in Mississippi in two major areas: the supply of goods and services and the adoption of business practices. Discussions of this sector’s involvement in environmentally beneficial activities will be provided where significant involvement by the sector is found. However, this report will only highlight a few of the research activities underway at Mississippi’s colleges and universities and will only briefly detail the training programs available. A more in-depth review of technologies developed at universities for commercialization is available in a separate report on research and development activities while an extensive list of training programs for green jobs is available in the training provider list. As with other components of this project, green was defined based on seven green activity categories:

1. Renewable Energy
2. Energy Efficiency
3. Greenhouse Gas Reduction
4. Pollution Reduction and Clean-up
5. Recycling and Waste Reduction
6. Sustainable Agriculture, Natural Resource Conservation and Coastal Restoration
7. Education, Compliance, Public Awareness and Training Supporting the Other Categories

Each activity category includes: the research, development, production and distribution of a final good or service; the supply of unique parts or inputs to a final good or service; and production processes and business practices regardless of the final good or service produced. The table below indicates which environmentally beneficial categories will be featured in this profile.

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Green Goods and Services

The first, and most basic service offered by the Educational Services sector is the transfer of knowledge through instruction and training: the how, why, when, and where of a topic. This sector is developing new curriculum where needed and modifying existing courses to fully prepare students for the greening of the economy and to remain up to date with emerging understandings of environmental systems. Educational institutions also produce goods when their students, professors, and instructors develop new devices, vehicles, processes or equipment. For each of the seven green activity categories there will first be a description of the types of courses being offered by Mississippi’s educational services institutions followed by an overview of a few promising research projects or product developments.

Renewable Energy

The full range of renewable energy technologies are being improved and implemented through the research and training provided by educational services institutions. Biofuels, wind, hydro, solar, and geothermal technology are all taught or advanced by Mississippi universities and technical and community colleges. Mississippi’s four year institutions provide a variety of engineering programs to help provide the training needed to produce the next generation of scientists and engineers needed to work in these fields. Four year colleges and universities also train the biologists, chemists, physicists, botanists, and agricultural professionals that are vital for the development of renewable fuels as well as the geologists and other earth scientists who may assist in geothermal power applications. Continuing education programs at universities also offer certificate programs as well as professional development courses for professionals seeking to refresh or improve their knowledge of renewable energy systems.

The community and technical colleges of Mississippi are also providing valuable training to professionals working in the renewable energy field. The Rankin Campus of Hinds Community College is developing an Energy Systems Technology Associates Program which will provide training for existing and emerging green technologies with a focus on renewable and low carbon energy. The program will require the construction of the Green Energy Systems Technology Laboratory and will be modeled after similar training facilities in other states. The technology laboratory will be a state-of-the-art instructional facility that provides hands on experience with energy systems, energy measurement devices and process controls. A variety of green building and architectural courses and training programs that address the design and implementation of renewable technologies in buildings are also available across Mississippi. Private training providers throughout the state are also stepping in to help prepare individuals to work in renewable energy fields. Additionally, apprenticeship programs in traditional trades such as electricians have adjusted their curriculums in
order to provide their workers with the knowledge and skills needed to work with renewable energy systems.

Educational services institutions also produce new knowledge and new products through the research of their students and staff. Some universities also operate unique research centers specifically tailored to the development of new techniques and technology. The Sustainable Energy Research Center (SERC), for example, is a consortium of Mississippi State University’s colleges, research institutes, centers, laboratories and stations focused on creating new engineering and scientific knowledge in the area of environmentally friendly and economically sustainable energy. SERC serves as the focal point of renewable energy research for Mississippi State University with the goal of building nationally recognized sustainable energy programs. The Sustainable Research Center conducts research on biofuels, feedstocks for biofuel production, as well as related economics and policy.

The Bioenergy Research Laboratory at Mississippi State University is another example of a specialized research entity with a focus on delivering environmental friendly technologies and services. The Bioenergy Research Laboratory conducts fundamental and application research on the catalytic production of biofuels and chemicals from biomass. The Bioenergy Research Laboratory is part of MSU’s Agricultural and Biological Engineering Department. The laboratory research focus is on technologies and processes related to biodiesel, hydrogen production and storage, and various fuel cells.

Professors working without the benefit of a research center also produce new products. Researchers from the Department of Biology and the Department of Chemistry at Jackson State University have developed a method for enhancing cellulosic ethanol fermentability. Cellulosic biomass, such as corn stalks, is first broken down into simple sugars for fermentation. This process, however, produces chemical compounds which inhibit the fermentation of sugars into ethanol. The researchers at Jackson State University have developed a treatment that helps detoxify and neutralize these chemical inhibitors.

**Energy Efficiency**

Improvements to energy efficiency can result in valuable process improvements and economic benefits as a result of reductions in energy use. These energy savings also contribute to cuts in greenhouse gas emissions and resource conservation that benefit the environment. Because the benefits of energy efficiency are so universal, all industries have some degree of interest in developing more energy efficient systems. Once again, engineering programs at four-year colleges can provide the background necessary to implement and design many types of energy saving systems for a variety of industries. Architectural and construction management programs are also instrumental in
providing training to students and professionals in building design and construction so that homes, offices, and industrial facilities use energy more efficiently.

A unique hands-on learning model in energy efficiency can be found at Mississippi State University which operates an Industrial Assessment Center (IAC) with funding from the U.S. Department of Energy. Using teams of undergraduates, graduate students, and faculty, teams conduct site visits and provide free, confidential energy, productivity, and waste assessments to small and mid-sized manufacturers. Teams later complete reports identifying opportunities to improve energy efficiency, reduce waste, and enhance productivity. According to the web page of the Industrial Assessment Center, the IAC sites visits have resulted in $5 million in annual energy and waste savings.5

The Southeastern Center for Industrial Energy Intensity Reduction (SECIEIR) is another center at MSU working with the U.S. Department of Energy to improve energy efficiency. SECIEIR is a collaborative effort among Mississippi State University, North Carolina State University, the University of Florida, and the Mississippi Development Authority. SECIEIR supports the US Department of Energy’s Industrial Technologies Program (ITP) and the Save Energy Now Leader Program initiatives to help companies reduce their energy intensity.6 SECIEIR provides no-cost energy assessments for companies, similar to those of the Industrial Assessment Center, and sponsors the US Department of Energy ITP Qualified Specialist training sessions for Southeastern states. According to the SECIEIR webpage, the center’s three year projected impact will result in 55.1 trillion BTU energy intensity reduction and several million tons of greenhouse gas emissions.7

The director from the College of Architecture at Mississippi State University is contributing significant research in the area of energy efficient design and construction. This researcher from MSU has designed an affordable and energy efficient mobile home unit known as the GreenMobile® unit. The GreenMobile® unit was designed to replace conventional single-wide trailer housing units by incorporating innovative energy saving concepts and add-on components. The Green Mobile® unit has been acknowledged by the FEMA Alternative Housing Pilot Program (AHPP) and was awarded $5.8 million for the construction of 100 units on the Mississippi Gulf Coast in 2006.8

Greenhouse Gas Reduction

Reductions to greenhouse gas emissions can be achieved through different methods depending on the industry. In some cases, adjustments to a firm’s production processes can result in lowered emissions and in other cases greenhouse gas reductions result primarily from improvements to energy efficiency. Engineers and technicians graduating from Mississippi’s four-year colleges will be best prepared to make those process adjustments and establish new methodologies or materials that contribute to lower greenhouse gas emissions. Emissions of excess carbon dioxide and other
greenhouse gases in the atmosphere have also created new fields for earth and environmental scientists who may play a role in progressing carbon capture and storage technology. Understanding the impacts of a changing climate related to greenhouse gases will also require the services of trained biologists, chemists, oceanographers, and climatologists, and coastal scientists. Because greenhouse gases are so closely associated with climate change and the related public policy, other disciplines at four year colleges are also contributing to a workforce capable of contributing to greenhouse gas reductions. Climate awareness is now a component of international relations, domestic policy, and economics. Finance, economics, and political science departments are now playing a role in preparing students to participate in policy making and carbon markets.

**Pollution Prevention and Clean-up**

Training programs for the proper collection, handling, transport, treatment and remediation of pollutants and environmental wastes are widely available from Mississippi’s Educational Services sector. Bachelors and Master’s degrees in environmental science have been available for a number of years to prepare students to work in the field of pollution prevention and clean-up. The clean-up of environmental and health hazards takes a variety of forms across industries requiring a number of different skills. Mississippi’s technical and community colleges play an important role in preparing workers to perform those tasks. Common training programs offered by technical and community colleges include hazardous waste operations, hazardous material safety, lead abatement, and asbestos removal. The industrial training program, offered at Mississippi Delta Community College, includes a safety program that addresses hazardous material and OSHA-specific training. South Mississippi Community College offers Hazardous Waste Operations and Emergency Response (HAZWOPER) training programs which address topics such as toxicology, hazard recognition, and decontamination. Hinds Community College also offers associate degree programs in environmental health and science.

Mississippi State University’s (MSU) Institute for Clean Energy Technology (ICET) is providing educational training and services that are focused on the problem of pollution. The ICET tracks toxic-gas plumes, monitors and remediates soil and water contaminants, and performs carbon sequestration research for the public and private industry. These services are provided with the assistance of graduate and undergraduate students which results in hands on training for students entering a field of study that benefits the environment.

Research by professors at Mississippi’s four-year institutions is also contributing vital services to pollution prevention and clean-up efforts, services particularly evident during the BP Oil Spill. The Mississippi Research Consortium (MRC) created the Deepwater Horizon Response Team for the purpose of lending their research and educational capabilities to address the needs of the Deepwater Horizon Incident. The MRC Deepwater Horizon Response Team’s contribution included coastal
observations and forecasting the movement and impact of the spill, environmental monitoring of water quality, marine life impacts and more. The MRC was formed in 1986 to enhance research efforts and consists of Jackson State University, Mississippi State University, University of Mississippi, and University of Southern Mississippi.

The work of professors also contributes to the understanding and elimination of everyday sources of pollution. Dr. James Rawlins of the University of Southern Mississippi has created a soy protein adhesive free of formaldehyde and petroleum components. This particle board adhesive is biodegradable and does not present health hazards.

Recycling and Waste Reduction
The Educational Services sector in Mississippi is providing waste reduction and recycling services largely through the innovations of the professors at its four-year institutions. Researchers in the Department of Chemistry and Biochemistry at the University of Southern Mississippi have developed Wombat powder which is a material used to create hybrid fuel. Wombat powder consists of a blend of scrap tire particles and agricultural wastes and can be used to create hybrid fuel for energy production. The Wombat powder is currently produced in a 1,200 square-foot pilot plant, however the facility and equipment need to be scaled up to create sufficient fuel for energy generation.

Sustainable Agriculture, Natural Resource Conservation and Coastal Restoration
Mississippi State University provides training for the next generation of agricultural specialists. For example, Agricultural and Information Science (AISE) degrees provide knowledge and training on how to access, analyze, apply, and amend information to solve problems of agriculture. They also offer an Agricultural Engineering Technology Business (AETB) program which provides students with the knowledge and skills to apply technical, business and management skills to problems in agricultural production, commodity markets and natural resource management. Mississippi State University also offers an extension program to farmers and other citizens across the state to develop skills and knowledge related to sustainable agriculture and resource conservation. The Coastal Research and Extension Center at MSU provides education, research, and outreach for Mississippi Coastal residents regarding the coastal environment such as fisheries, wetland management, marine industry, economics and law.

There are specialized centers in Mississippi established to address coastal erosion through wetland protection and restoration. The University of Mississippi’s (Ole Miss) Center for Water and Wetland Resources (CWWR), for example, is focused on assessing environmental change, sustaining ecological systems, developing principles for predictive environmental management, and studying environmental restoration and rehabilitation. The CWWR at Ole Miss also serves as an...
educational facility and provides hands on field experiences, research, and training to undergraduate and graduate students pursuing a specialization in natural resource conservation and coastal restoration.

The National Center for Computational Hydroscience and Engineering (NCCHE) at Ole Miss is yet another example of a specialized center addressing natural resource conservation and coastal restoration issues. Researchers at the NCCHE conduct basic and applied research in the area of tidal flows and coastal processes, water quality modeling, and sediment transport modeling, among others. One NCCHE researcher has been investigating the effectiveness of wetland vegetation in mitigating hurricane and storm surge damage to the Mississippi coastline and surrounding infrastructure. Knowledge gained from this research can also mitigate coastal erosion processes which occur from day-to-day wave impacts.

**Education, Compliance, Public Awareness and Training**

Education and training is the key service provided by this sector. It is active in providing these types of services across every environmentally beneficial activity category. Even fields not traditionally considered “green” are contributing to environmental goals by serving as industry regulators and by keeping up with technological changes that can assist any business become a better steward of environmental resources. Additionally, institutions in this sector also provide specific trainings and learning opportunities relating to communicating about environmental issues and experiencing how other countries understand and cope with their own environmental struggles.

The National Center for Remote Sensing, Air, and Space Law at the University of Mississippi is contributing to environmental goals by training, researching, and disseminating information that enhances and supports environmental stewardship. The center, for example, hosts national and international conferences which address air, water, and other environmental law topics. These events serve as an epicenter for generating discussion about important topics in the area of environmental law.

**Green Business Practices**

The colleges and universities around Mississippi in the Educational Services sector are pursuing wholesale changes to their operations and business practices in order to be better stewards of environmental resources. In many cases the schools have established specialized offices on campus to coordinate and implement environmental improvements.

Environmental performance is a growing point of comparison between colleges and universities. U.S. News and World Report now lists colleges with green dorms and there is an entire rating system from the Sustainable Endowment Institute that evaluates schools according to environmental
programs and financial sustainability. The Sustainable Endowment Institute examines the 300 colleges and universities with the largest endowments across the United States and Canada and a small number of other schools that apply for inclusion each year for their “College Sustainability Report Card.” Full reports on the sustainability efforts from the University of Mississippi and Mississippi State University can be found on their website: http://www.greenreportcard.org/report-card-2011/schools.

In 2008, the University of Mississippi established the Office of Campus Sustainability to lead their commitments to the environment and sustainability. The Office of Campus Sustainability builds institutional learning capabilities in support of continual improvement in building design and operations, energy and water conservation, waste minimization, as well as recycling and service provision. The sustainability office collaborates with education and research sustainability programs across the various institutes, centers, and departments to ensure the environmental sustainability objectives are aligned and upheld across the university. To foster continual improvement, the Office of Campus Sustainability Webpage also provides information to students about initiatives and outreach programs that promote sustainable practices. For example, the webpage provides information on “Project Crunchtime” which seeks to increase recycling and minimize waste at Ole Miss Football games.

The Environmental Collaborative Office at Mississippi State University establishes the objectives, disseminates information, and coordinates campus sustainability efforts. Vision 2020, for example, is a sustainability initiative that sets baselines, goals, and performance metrics to improve the campus environment and enhance sustainability. The ECO Team and campus sustainability organizations provide support and serve as an information resource for the Environmental Collaborative Office. The ECO Team consists of researchers and campus staff with expertise to guide the ECO sustainability efforts in areas of building, energy, transportation, recycling, waste minimization, curriculum, and research development. The Environmental Collaborative Office established ECO Paw, which is a program designed to provide MSU faculty and staff an opportunity to contribute to the university’s sustainability efforts through recycling and energy efficiency measures.

Efforts at Mississippi State University and the University of Mississippi also carry over to their dining services offerings. Aramark, the food services provider for both schools, has committed to installing energy and water conserving programs at all higher education sites, has switched to the exclusive purchase of recycled content paper products, and is now using green cleaning product. They are increasing their sustainable food offerings and will be diverting 100 percent of their fryer oil waste.
The Office of Sustainability at the University of Southern Mississippi (USM) is responsible for campus recycling, sustainability operations, and the Eco Eagle program. The Eco Eagle is a sustainability outreach program for the campus and surrounding communities which increases impact of sustainability initiatives through the communication and involvement. The Eco Eagle creates a positive environmental impact through curriculum development at USM, an on-campus film and lecture series on sustainability topics, a peer-to-peer knowledge community, and various sustainability projects.19

Tougaloo College’s Sustainability Task Force works to decrease the school’s carbon footprint, identify green policies, increase campus recycling, reduce energy, conserve natural resources, and encourage green construction practices.20 In existing buildings, the college employs LED lighting and energy management systems to conserve energy as well as dual-flush toilets and efficient washing machines to reduce water use. Tougaloo’s campus recycles cardboard, some plastics, and used computers.

**Renewable Energy**

Universities and colleges in Mississippi are investing in renewable energy technologies to reduce their environmental impact and save money. In the spring of 2011, the University of Mississippi’s Center for Manufacturing Excellence will install 414 photovoltaic solar panels which will make it the largest roof-mounted, solar power complex in Mississippi.21 The solar panels will provide the facility with its own power during the daytime and even return power to the grid. The Mississippi Development Authority financed the majority of the project with a $529,395 grant that was funded by the American Recovery and Reinvestment Act of 2009.

**Energy Efficiency**

Many campuses have begun to closely monitor energy use in order to identify cost-effective energy savings that would both benefit the environment and save money. The University of Mississippi partnered with SmartSynch, a Mississippi-based Smart Grid Technology Company, to reduce the power consumption of campus buildings and publish real-time results on various social media.22 The SmartSynch CEO explains individuals are more inclined to reduce the use of unnecessary appliances when they have access to energy consumption data.23 With SmartSynch Meters installed at several campus buildings, students and university officials now have the ability to track a building’s energy consumption in real time.

The University of Southern Mississippi’s Physical Plant Division implements the Energy Management Program to increase the energy efficiency of various buildings throughout the campus. The program installs energy efficient appliances and systems to reduce energy consumption. For example, Physical Plant Division implemented the Energy Management Control System (EMCS)
which provides automated heating-ventilating and air-conditioning system control and trend logging for up-to-date facility energy information.\textsuperscript{24}

**Greenhouse Gas Reduction**

All schools included in the 2011 College Sustainability Report Card have either completed or are completing greenhouse gas inventories.

**Pollution Prevention and Clean Up**

No evidence of significant involvement for this activity category was found in the Educational Services sector.

**Recycling and Waste Reduction**

Recycling efforts are popular on college campuses in Mississippi. Mississippi State University and the University of Southern Mississippi are both participants in “Recyclemania.” Recyclemania is a nation-wide competition and benchmarking tool for university and college recycling programs to promote waste reduction and waste minimization on campus.\textsuperscript{25} Mississippi State University recycled 3,419 pounds of paper, plastic, metal, and cardboard in the first six weeks of the competition.\textsuperscript{26} In 2010, Jackson Public Schools implemented a pilot recycling program to identify waste streams and encourage recycling and waste reduction for schools and their administrative offices.\textsuperscript{27} Delta State University’s Physical Plant recycles 18,000 pounds of paper and cardboard per month.\textsuperscript{28}

**Sustainable Agriculture, Natural Resources Conservation and Coastal Restoration**

No evidence of significant involvement for this activity category was found in the Educational Services sector. However, Mississippi State University’s dining services are taking steps to increase the amount of sustainably grown products featured in their dining halls. Aramark, the food services provider for Mississippi State, pledges to increase sustainable food offerings by up to 5 percent per year.\textsuperscript{29}

**Education, Compliance, Public Awareness and Training**

The sustainability efforts of Mississippi’s colleges and universities are often highly visible and can be seen as public demonstrations of the feasibility of environmentally friendly technologies. Schools are also establishing offices to oversee environmental compliance.

**Economic Factors**

Educational institutions that choose to adopt new programs or reconfigure existing programs in order to prepare students for careers in environmentally beneficial fields often do so as the indirect result of economic pressures. The greening of the economy is just one example of how schools must evolve to meet student and workforce needs. Adding new programs or courses is one way that
colleges and community colleges seek to remain relevant to their students and maintain enrollment levels each year. Relevance, particularly for technical and community colleges, is largely determined by how successful students are on the job market once they graduate. As demand grows for workers with knowledge of environmentally beneficial activities, colleges and universities will adapt their programs to produce the most competitive graduates possible. Should training programs become too detached from workforce needs and students fail to find work after school, educational institutions could see reductions in enrollment as students flock to other schools in order to obtain the training they need.

University budgets provide a direct influence on environmentally beneficial activities undertaken by colleges and universities. While most educational institutions are not thought of as profit maximizing, those institutions work hard to provide the highest quality staff, course offerings, student activities, and facilities given their budget constraint. As the budgetary outlook for many universities has worsened due to recent economic conditions, many institutions will be more interested in undertaking green initiatives if they also provide cost savings. However, those budgetary pressures may also have a negative effect on efforts to create new course offerings in response to demand for green-related curricula.

Public Policy

A key policy action that assisted educational institutions in Mississippi was the American Recovery and Reinvestment Act of 2009. Funding from this legislation totaled $100 billion for education across the country to support school reform efforts, state education systems, and higher education. Mississippi received over $1.6 billion in funding for education from ARRA and other stimulus grants.

Technology

New technology can often be both developed and implemented at educational services institutions. Researchers and professionals associated with schools devise new tools, processes, and materials that can be tested and brought to market. Schools are also where emerging technologies begin to achieve greater market penetration: as more students or technicians are trained or certified in a technology it can be applied in more settings. An overview of many of the environmentally beneficial technologies under development at Mississippi educational institutions can be found in the Mississippi Research and Technology Report.
Job Growth and Workforce Development

Considering primary and support jobs, green employment in the Educational Services sector is expected to grow at a similar rate to the overall sector during the next 10 years reaching 1,277 jobs in 2020 relative to the 2010 baseline of 1,053 estimated from the Green Jobs survey. The growth in this sector is expected to be consistent throughout the projection horizon. Green employment is expected to grow to 1,074 in 2011 and 1,095 in 2012. The uniform increase will continue throughout the projection horizon reaching 1,160 in 2015 at the projection’s halfway point and 1,277 in 2020.

Workforce needs in the Educational Services sector can be difficult to determine, especially for more specialized programs, because individual disciplines often operate under different labor market demands. Traditionally, openings for professors at large educational institutions are few in each department and highly competitive. Institutions with a large amount of research activity, however, also require the services of researchers and other technical and support personnel—positions that are more plentiful and require fewer credentials. Educational staff working in fields or at institutions more directly connected to technical trades can typically move between the classroom and industry employment more readily. Instructors in these types of programs are expected to remain more intimately aware of workforce training needs in order to improve the educational services of the institution and the preparedness of its graduates.

Finally, it should be noted that the anticipated employment growth of green jobs in the Educational Services sector will be comprised of a combination of the creation of new green jobs and the gradual greening of existing jobs. While the contribution of each factor has yet to be determined, training providers should consider the unique training needs brought on by each of these changes. For some green occupations, existing workers will need additional training or education to enhance their skills or credentials. For other occupations, curricula may be needed to provide a more comprehensive training for new workers or those entering a new occupation.

Key Players

Mississippi Board of Trustees of State Institutions of Higher Learning: www.mississippi.edu
Statewide agency responsible for coordinating all public higher education in Mississippi.

The starting point for a sector’s green jobs projection is the survey estimate, which includes private and public entities in each sector. Baseline growth rates were taken from the state’s primary employment projections, which include only private sector establishments, and supplemented with additional information on future changes to the green economy collected through this research effort.
A federally funded state workforce agency which provides labor market information, job seeker, employer, and unemployment services.

Mississippi Community College Board: [www.sbcjc.cc.ms.us](http://www.sbcjc.cc.ms.us) Management agency for all public 2-year institutions across Mississippi. Works to improve educational programming and the workforce success of all participants.

Other Large Private Institutions
Notes


