

Seeing the Future: The Green Economy

Introduction

Go Solar. Think Green! Ecology Happens. 50 MPG Patriot.

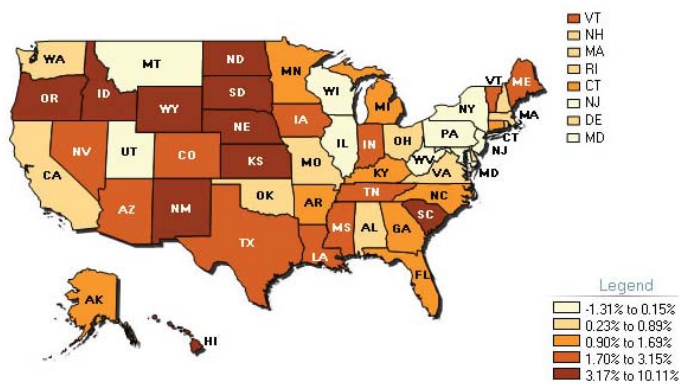
Today's bumper stickers reflect individuals' concern regarding America's consumption of fossil fuels. Often, these concerns are cast under the light of needing to reduce the amount of carbon released into the atmosphere and the need to reduce our consumption of foreign oil. What's not often discussed is the third imperative for "thinking green": economic opportunity.

The green economy encompasses the creation, distribution, and consumption of products and services that reduce carbon emissions and diversify the region's energy sources. This economy includes the scientist who engineers a better biofuel, the entrepreneur who invests in a clean product, the manufacturer who builds wind turbines, the technician who installs energy efficient heating and cooling systems, and the individual who purchases LED light bulbs.

Engaging in these new markets can lead to new jobs, new services, and a larger tax base for cities and towns across the South. A report by the Pew Center on the States found that jobs in the green economy grew two and a half times faster than all jobs between 1998 and 2007.¹

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Average Annual Growth in Clean Energy Economy Jobs between 1998 and 2007



Source: *The Clean Energy Economy: Repowering Jobs, Business, and Investments in America* (Washington, D.C.: Pew Center on the States, 2009)

Key Points

1) Energy efficiency saves money and creates jobs.

Energy efficiency is often referred to as the low-hanging fruit of the green economy due to its low cost and ease of implementation. By employing energy efficiency measures money is saved and jobs are created.

On average, the South's population is expected to grow by 17 percent between 2008 and 2030. This growing population will inevitably demand more electricity. There are two ways to respond to this growth: invest in energy efficiency measures to reduce the consumption of electricity or build new power facilities. With energy efficiency measures much cheaper to implement, many states and communities are looking for ways to do just that.

A report by the American Council for an Energy Efficient Economy found that energy efficiency measures in Virginia could create nearly 10,000 jobs and add over \$800 million to the gross state product by 2025. In addition, individual households could save an average of \$20 per month by 2025.²

The Green Government Initiative by the National Association of Counties focuses on how governments, particularly, can have an impact on implementing and modeling energy efficiency practices in their counties. The purpose of the initiative is to work "as a catalyst between local governments and the private sector to facilitate green government best practices, products and policies that result in financial and environmental savings." As part of the initiative, NACO provides a database on green government initiatives around the country, the Electronic Green Government Network, and green government training opportunities.

2) Rural communities have unique opportunities.

Rural communities have a particularly unique opportunity in the green economy by way of using their resources to grow agricultural crops and forests, known as biomass, and converting those into electricity, transportation fuel, and products.

One opportunity is to take the actual biomass grown and/or the waste from that biomass and sell it to companies who will convert it into electricity, transportation fuel, or other products. This provides an opportunity for new revenue streams for crops and trees, as well as the waste that comes from other on-farm processes.

In addition to being the providers of the biomass, communities are also impacted by the creation of power plants and refineries that produce biofuels (such as ethanol and biodiesel). According to a study by the University of Georgia, a 50 million gallon biomass-based ethanol plant would have a total direct and indirect impact of 444 jobs and \$150 million in annual revenues.³ Another study by the University of Florida estimates that a 40 megawatt biomass power plant could, on average, have a total direct and indirect impact of 370 jobs and \$21 million in annual revenues.⁴

3) Green technology clusters are beginning to emerge and expand.

There are many types of technology clusters, including biotechnology, information technology and aeronautics. Green technology is no different. A cluster may look like a group of firms related to wind and solar technology research and manufacturing or firms that are focused on the development of goods made from biomass, known as bioproducts. Confluences of research and commercial developments in the area of green technology have emerged across the region.

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One example comes from the state of Tennessee where, over the last two years, significant investments by the state have spurred the development of a solar cluster. The state has seen over \$1 billion dollars invested by solar manufacturing firms that will create over 750 direct jobs. These developments are aided by the state's Green Energy Tax Credit for green energy supply chain manufacturers. In addition, they created the Volunteer State Solar Initiative, a comprehensive solar energy and economic development program. The Initiative consists of two projects: 1) The Tennessee Solar Institute, which focuses on industry partnerships to improve the affordability and efficiency of solar products; and 2) the West Tennessee Solar Farm, a five-megawatt 20-acre power generation facility in Haywood County that will be one of the largest installations in the Southeast and serve as a demonstration tool for education and economic development.

4) Developing the green economy workforce requires a wide array of experts and skills.

A unique characteristic of the green economy is the breadth of expertise involved in making it a reality. At the most basic level, scientists and engineers are needed to create new cost-effective alternatives to fossil fuels. They are designing new materials for improved solar power efficiency and engineering new crops specifically tailored towards creating biofuels.

From the consumer's perspective, it is necessary to have a trained workforce that has expertise in installation and service. For example, technicians are needed to install and repair solar panels and energy efficiency products.

Community colleges play a particularly important role in the development of the green economy workforce and many in the South are already taking the lead. Central Carolina Community College in North Carolina has trained students in sustainable fuel production since 2002.⁵ Another example comes from the Arkansas Delta WIRED Initiative. This initiative involves increasing the capacity of the region in the research and development of biofuels as well as an engine test facility.⁶

5) Communities can contribute to their own energy mix by developing community-based projects that keep energy dollars local.

Another point of entry for communities in the green economy is by designing projects where the community produces their own energy. These sources are often renewable and keep energy dollars from leaving the community.

In Martinsville, Virginia, Red Birch Energy produces biodiesel from canola that is grown from local farmers. At both of the Red Birch locations, biodiesel is produced on site and sold at their truck stops that are adjacent to the biodiesel production facility. According to the company, \$.90 of every dollar used to purchase the biodiesel stays in the local community.⁷

6) Public policy plays a large role in the advancement and direction of the energy efficiency and renewable energy industries.

The advancement of the energy efficiency and renewable energy industries is heavily influenced by the public policy surrounding those industries. Federal and state tax incentives, subsidies, and regulatory standards have all influenced the growth of the industry.

One example of public policy's influence comes from Germany. A relatively cold climate country, Germany is the world's leader in installed photovoltaic solar panels due to policies that require utilities to purchase solar power at more than the market value.

In the United States, individual state governments have provided policy supports such as renewable standards, tax incentives, grants, and loans to encourage industry development. The federal government has also provided policy supports, such as targets for renewable fuels and research and development funding.

Ideas for Getting Started

- **Hold workshops on energy efficiency and renewable energy geared towards businesses, local governments, and general consumers.**

Communities can hold workshops tailored towards businesses and consumers to provide general knowledge regarding renewable energy in addition to highlighting opportunities to save money with energy efficiency measures. Workshops should include topics such as do-it-yourself measures as well as larger investments and funding opportunities for those activities. In addition, local governments can provide a leadership role in adopting energy efficiency and renewable energy projects in their offices, schools, and public safety facilities.

- **Collaborate with local farm and forestry groups to identify potential bioenergy opportunities in the region.**

Groups such as state Farm Bureaus, cooperative extension, and forestry associations can come together to share information and solicit further research to determine the opportunities in the region for biopower, biofuels, and bioproducts.

- **Convene green technology researchers, private sector firms, and public sector initiatives in your area to identify areas of convergence and common interest.**

The first step in being able to support a green technology cluster is to identify what areas of the green economy are already being pursued in your region by researchers, private sector firms, and public sector initiatives. An initial convening of these different players will bring forth where there are commonalities and how communities, economic developers, and chambers of commerce can support their efforts.

- **Visit community colleges in and around your area already training the green economy workforce.**

Community colleges play an important role in training and retraining the area workforce to engage in the green economy. Work with your local community colleges to catalogue the training programs available in your area, the application requirements, and potential job opportunities following the training. This information can then be advertised to area residents as well as potential green economy industries and businesses looking for a qualified workforce.

- **Work with extension professionals to identify potential community-based renewable energy projects.**

Cooperative extension professionals can help community leaders identify potential community-based renewable energy projects by assessing the region's renewable energy potential. Potential projects may include biofuels, biopower, wind, and solar projects that help to keep energy dollars in the local community.

- **Keep abreast of state and federal policies that influence the growth and development of the energy efficiency and renewable energy industries.**

Local government, particularly, can be a clearinghouse for information on new incentives, subsidies, tax credits, and other policies that could impact the community's efforts in developing the energy efficiency and renewable energy industry. Policies of interest might include the Rural Energy for America Program (REAP) and tax credits for installing energy efficiency measures. A good tool for tracking these policies is the Database of State Incentives for Renewables & Efficiency (DSIRE) at <http://www.dsireusa.org>.

Examples:

Rock Port, Missouri



Rock Port, Missouri, population 1,300, is the first U.S. city to be 100 percent powered by wind energy. Not only do they meet 100 percent of the local energy demand with wind power, they also produce enough excess to sell to their neighbors.

The idea came from a local Rock Port citizen as he was driving across the plains of Missouri and wondered why his town couldn't use wind for its power. The citizen presented his idea to a St. Louis-based wind energy developer, which led to the construction of four turbines within the Rock Port city limits.

Not only does the county benefit from county real estate taxes paid by the developer, but rural land owners can lease their property for \$3,000 to \$5,000 per turbine a year to house the turbines.

To learn more visit: <http://www.rockportwind.com>

Fayetteville, Arkansas: Green Valley Network



Created in the spring of 2008, Green Valley Network is a non-profit organization dedicated to creating the next technology cluster in Arkansas. They point out that it's been done before – the Research Triangle cultivated biotech and Silicon Valley owns IT. Green Valley sees itself as the center of sustainability technology. It's where academia, government and business leaders share ideas, spur growth and foster economic development for sustainability technology.

Draw a circle using Northwest Arkansas as the center, with a radius of about a five hour drive from Fayetteville. Take a look at the resources within: the largest global consumer demand retailer and proponent of sustainability on Earth, the greatest number of consumer product goods companies (more than 1,300), the largest concentration of plant scientists in the world, a national energy center, and the world's busiest cargo airport. There is no other region on the planet that houses what exists in Green Valley, they emphasize.

The global business world knows that weaving environmentally sound corporate practices into their business models increases both profitability and "green" benefits. Green Valley Network serves as the communication and educational tool for academia, government, community leaders and businesses within Green Valley. On Green Valley's website, visitors can collaborate with innovators and businesses to eliminate the middle man between sustainable technology and commercialization. The Network's online Technology Exchange Center, for example, aims to help innovators with sustainability intellectual property and companies that want to find the latest technology learn about each other. Similarly, entrepreneurs can submit business plans, and investors can review investment opportunities through the online Venture Center.

To learn more, visit: <http://www.greenvalleynetwork.org>

Resources:

Organizations/Websites:

25x'25 – America's Energy Future

25x'25 is a coalition whose goal is for the nation to get 25 percent of its energy from renewable resources by the year 2025.

<http://www.25x25.org>

American Council for an Energy-Efficient Economy

ACEEE is a nonprofit organization dedicated to advancing energy efficiency as a means of promoting economic prosperity, energy security, and environmental protection.

<http://www.aceee.org>

The Apollo Alliance

The Apollo Alliance is a coalition of business, labor, environmental and community leaders that is working to make America a global leader in clean energy products and services and create well-paid, green collar jobs.

<http://www.apolloalliance.org>

Clean Edge

Clean Edge is a research and publishing firm devoted to the clean-tech sector. Its products and services include an annual Clean Energy Trends report, a Clean-Tech Investor Summit, and an online clean-tech jobs board.

<http://www.cleantech.com>

Database of State Incentives for Renewables & Efficiency

DSIRE is a comprehensive source of information on state, local, utility and federal incentives and policies that promote renewable energy and energy efficiency.

<http://www.dsireusa.org>

Government Purchasing Alliance – Go Green Program

U.S. Communities Government Purchasing Alliance Go Green Program offers links to green products and services as well as information and resources to help government agencies make educated decisions about their purchases.

<http://www.gogreencommunities.org>

Greenbiz.com

Greenbiz.com describes itself as “the leading online news and information resource on how to align environmental responsibility with business success.”

<http://www.greenbiz.com>

ICLEI – Local Governments for Sustainability

ICLEI is a membership association of more than 600 U.S. local governments committed to climate protection and sustainability.

<http://www.icleiusa.org>

National Association of Counties – Green Government Initiative

NACo's Green Government Initiative provides comprehensive resources for local governments on all things green, including energy, air quality, transportation, water quality, land use, purchasing and recycling.

<http://www.naco.org/programs/csd/pages/greengovernmentinitiative.aspx>

Southeast Energy Efficiency Alliance

The Alliance brings together a diverse group of stakeholders to promote energy efficiency programs and policies in an 11-state region.

<http://www.seealliance.org>

Southeast Agriculture & Forestry Energy Resources Alliance

SAFER was formed to provide strategic leadership to the agricultural and forestry sectors in advancing and leveraging renewable energy initiatives in the Southeast.

<http://www.saferalliance.net>

Southern Alliance for Clean Energy

SACE is a regional organization primarily focused on developing clean energy solutions throughout the Southeast.

<http://www.cleanenergy.org>

Southern States Energy Board

SSEB is a non-profit, interstate compact whose mission is to enhance economic development and the quality of life in the South through innovations in energy and environmental policies, programs and technologies.

<http://www.sseb.org>

USDA Rural Development — Energy Initiatives

USDA's Energy Initiatives focus on using agriculture as a part of the energy solution.

<http://www.rurdev.usda.gov/rd/energy/>

Books, Articles and Other Written Resources:

Bezdek, Roger. *Renewable Energy and Energy Efficiency: Economic Drivers for the 21st Century* (Boulder, CO: American Solar Energy Society, Nov. 2007).

<http://www.greenforall.org/resources/renewable-energy-and-energy-efficiency-economic>

Carr, Geoffrey. "The Future of Energy: the power and the glory," *The Economist*, June 19, 2008.

http://www.economist.com/specialreports/displaystory.cfm?story_id=11565685

The Clean Energy Economy: Repowering Jobs, Business, and Investments in America (Washington, D.C.: Pew Center on the States, 2009).

http://www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf

Clean Tech Job Trends 2009 (Portland, OR: Clean Edge, Oct. 2009).

<http://www.cleantech.com/reports/reports-jobtrends2009.php>

Energizing Appalachia: A Regional Blueprint for Economic and Energy Development (Washington, D.C.: Appalachian Regional Commission, Oct. 2006).
<http://www.arc.gov/images/newsroom/publications/energyblueprint/energyblueprint.pdf>

Friedman, Thomas. *Hot, Flat and Crowded: Why We Need a Green Revolution – and How it Can Renew America* (New York, New York: Farrar, Straus and Giroux, 2008). An article in which Thomas Friedman talks about the book's key themes is available at www.iht.com/articles/2007/04/15/opinion/web-0415edgreen-full.php?page=1.

Green Pathways out of Poverty: Workforce Development Initiatives (Oakland, CA: Green for All, March 2009).
<http://www.greenforall.org/what-we-do/building-a-movement/community-of-practice/green-pathways-out-of-poverty-workforce-development-initiatives/download>.

Hodges, Alan and Mohammad Rahmani. *Economic Impacts of Generating Electricity Fact Sheet* (Gainesville, FL: University of Florida, 2007). <http://edis.ifas.ufl.edu/pdffiles/FE/FE69700.pdf>.

State Green Economy Profiles (Washington, D.C.: National Governors' Association, September 2009). <http://www.nga.org/portal/site/nga/menuitem.9123e83a1f6786440ddcbeeb501010a0/?vgnnextoid=ce5bea15a18e3210VgnVCM1000005e00100aRCRD>

Southeast Energy Opportunities: Power of Efficiencies (Washington, D.C.: World Resources Institute, April 2009). http://www.seealliance.org/PDFs/powerofefficiency_wri_seea2009-04.pdf

Southern Bioenergy Roadmap (Research Triangle Park, NC: Southeast Agriculture & Forestry Energy Resources Alliance, 2009). <http://www.saferalliance.net/projects/roadmap.html>

Podcasts, Videos and Other Non-Written Materials:

Greenbiz

Greenbiz.com offers a number of podcasts related to businesses and the green economy.
<http://www.greenbiz.com/featured/podcast>

Renewable Energy World

Nearly 200 podcasts on renewable energy topics are available at <http://www.renewableenergyworld.com/rea/news/section/podcast>. More than 275 videos are available at <http://www.renewableenergyworld.com/rea/video>.

Southern Growth Policies Board

A December 2009 webinar entitled, "Clean Energy Economy in the South" and featuring Kil Huh from the Pew Center on the States, is available at <http://www.southern.org/webinars/webinars.html>

The Watt

The Watt has more than 75 podcasts available on topics ranging from "building a wind farm" to "the zero-carbon car."
<http://www.thewatt.com/tWP>

Endnotes:

1) *The Clean Energy Economy: Repowering Jobs, Business, and Investments in America* (Washington, D.C.: Pew Center on the States, 2009). At http://www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf.

2) American Council on an Energy Efficient Economy, *Energizing Virginia: Efficiency First*, September 2008. At <http://www.aceee.org/store/proddetail.cfm?CFID=4605138&CFTOKEN=11986016&ItemID=453&CategoryID=7>.

3) Flanders, Archie and John McKissick. *Economic Impact of Cellulosic Ethanol Production in Treutlen County*, University of Georgia Center for Agribusiness and Economic Development, April 2007.

4) Hodges, Alan W. and Mohammad Rahmani. *Wood to Energy: Economic Impacts of Generating Electricity Fact Sheets*, University of Florida, September 2007, <http://edis.ifas.ufl.edu/fe697>.

5) See Central Carolina Community College, Alternative Energy Technologies Degree Program at <http://www.cccc.edu/biofuels/> for more information.

6) See http://www.doleta.gov/wired/files/ri_Arkansas_Delta.pdf for more information.

7) See <http://redbirchenergy.com/> for more information.