DIGEST OF CLIMATE CHANGE AND ENERGY INITIATIVES IN THE SOUTH

August 2009

prepared by

Southern States Energy Board

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INTRODUCTION

Digest of Climate Change and Energy Initiatives in the South has been compiled by the Southern States Energy Board (SSEB) at the request of the Southern Governors' Association's 2008-09 Chairman, Virginia Governor Tim Kaine. It is intended to provide a summary of the climate change and energy policy initiatives currently underway in the 16 states and two territories represented by the member states of these organizations.

This document provides a picture of each state's initiatives and a point of reference for each state's energy and climate policy advisors, as they work to share their perspectives with federal policy makers in the context of the current effort to pass national climate change legislation.

Whatever the final outcome of the current federal debate may be, many of the actions required to meet national greenhouse gas reduction goals will be taken at the state level. Even before national policy has been passed into law, however, states throughout the country have been leading the way by making significant steps toward addressing concerns about climate change, and the South is no exception.

Rather than attempting to craft regional cap and trade programs or mandating specific technologies, Southern states are focusing on incentives for building energy efficiency, fostering a bioeconomy through industry, supporting research and development of clean energy technologies and adopting "lead by example" policies for state government.

The South is rich in natural resources, and has historically supplied energy to states across the Nation. Southern states are working hard to find a balance between policies that will ensure they can meet regional and national energy supply needs and create and sustain strong state, regional and national economies, all while conserving and protecting the environment. This balance becomes even more important as states struggle to balance their budgets in the face of the current severe economic downturn.

When you consider the complexion of the South, this positioning is not all that surprising. In fact, the South represents a unique voice in this broader national discussion because it produces more than half of domestic energy supply. It also is home to nearly 40 percent of the Nation's population, with many Southern states substantially exceeding the Nation's eight percent annual growth rate. Its economy relies heavily on manufacturing jobs and agriculture, but at the same time, tourism is considered the region's second largest industry.

Consider some of the details:

Contributing to the Domestic Energy Supply. More than 85 percent of the Nation's energy supply comes from coal, natural gas and crude oil, and the greatest regional supplier of those three fuels is the South.

Based on most recently available data from the Energy Information Administration (EIA):

- Three of the top five producing states for coal, oil and natural gas are located in the South.
    - Southern states produce 66 percent of the Nation's natural gas supply;
    - Just four Southern states (TX, LA, AL and OK) produce more than half (54%) of the Nation's domestic crude oil;
    - Three Southern states (WV, KY and TX) rank among the top five coal producing states in the Nation, and collectively produce more coal than the rest of the top ten combined, excluding Wyoming's Powder River Basin.
- Of the top ten states producing renewable fuels, six of them are located in the South (AL, GA, FL, TX, NC and LA), and the South is committed to using renewable fuels: approximately 50 percent of the biomass used to generate electricity is used in the South.
- 13 Southern states are host to 26 nuclear plants with 45 reactors, producing 44 percent of the Nation's nuclear generated electricity.

Balancing Economics with Conservation. In addition to providing substantially to the Nation's domestic energy supply, the South's natural resources have meant jobs and economic development for the region's residents. Both the traditional energy sector and the growing renewable energy sector employ thousands of Southerners.

The regional availability of reliable, reasonably priced energy also has been a driving force that has enabled Southern states to successfully attract and retain businesses in all industry sectors, providing well paying jobs for Southerners. Based on 2008 data from the Bureau of Labor Statistics, seven of the top ten states ranked by manufacturing jobs per capita are in the South. At the same time, agriculture and tourism both continue to be huge economic drivers for Southern states, and Southern Governors are ever-mindful that conservation is critical to maintaining both the quality of life and natural beauty that makes the South attractive for residents and visitors alike.

Thus, Southern Governors work hard to balance their economic development goals and their roles in improving America's energy security through domestic energy supply, with conservation and environmental protection goals, which are essential to the well being of their states' economies. Ten Southern states have completed or are working on climate action plans, and fourteen have directed development of state energy plans to provide overall guidance to energy policy and actions in our states. Furthermore, most SGA states are supporting the development of renewable and other clean energy industries, from biofuels and nuclear resources, to solar and wind.

In short, Southern Governors are providing the leadership and innovative approaches required to balance economic opportunity for their citizens with policies that promote conservation and environmental stewardship. While the statistics noted above provide some regional context regarding

the complexities of the Southern policy landscape, each state has unique attributes and resources that are taken into consideration as officials design the best approaches to benefit their constituencies.

As you peruse this digest of state programs, policies and research, which is the result of the hard work and attention of many participants in each of the states represented herein, you will find that the states in the South are progressive and forward thinking as they plan for a better future for generations to come.

ALABAMA

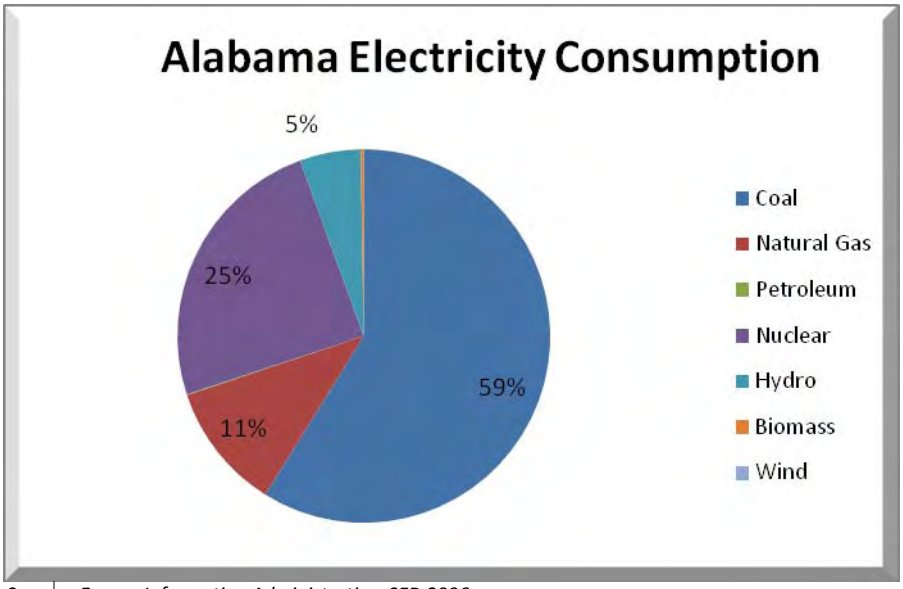
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Alabama is an energy production state with a vibrant coal industry supplying more than 20,600 thousand short tons of coal. The state also boasts a crude oil industry, with both onshore and offshore reserves, and new onshore drilling activity resulting from improvements in technology and increased oil prices. In addition, Alabama's natural gas production accounts for about 1.5 percent of the U.S. total and has access to pipelines reaching Louisiana and Texas, allowing its thriving industrial economy to utilize the natural gas resources of those states as well.

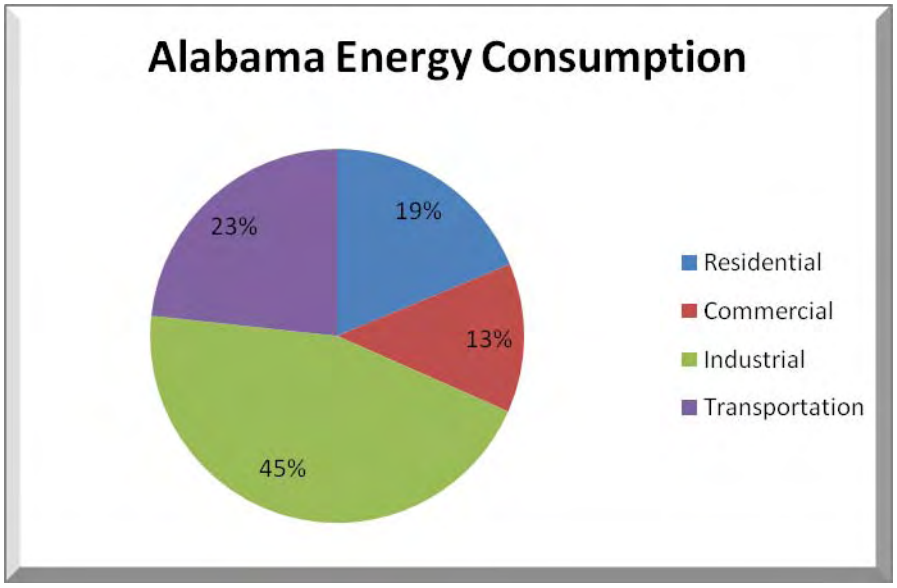
Like most Southern states, Alabama relies heavily on coal for its electricity generation, with coal accounting for about 36 percent of the state's total. However, Alabama is also a major nuclear power production state, and as late as 2005 about one-fourth of the electricity generated in the state came from its two nuclear power plants. Alabama's more than two-dozen hydroelectric dams account for about five percent of the state's electricity generation, making it one of the top hydroelectricity states east of the Rocky Mountains. The state also enjoys environmental conditions well suited for growing switchgrass, making it an ideal location for future bioenergy plants. In terms of energy consumption, industrial activity accounts for nearly half (45%), while only about 40 percent is used for residential and transportation purposes collectively. The capacity of Alabama's energy industry and other factors ensure that Alabamans pay less for electricity in all sectors of the economy. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in the state:

Electricity Consumption (by source): About 60 percent of Alabama's consumed electricity is from coal sources. One-fourth of its electricity comes from nuclear plants, with natural gas and hydroelectric power accounting for smaller portions of the mix.



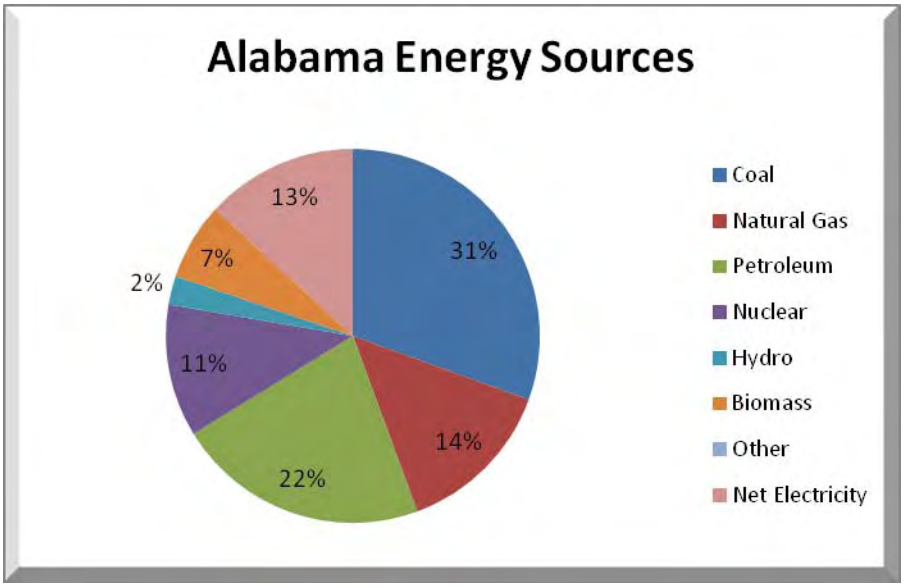
Source: Energy Information Administrative, SED 2006

Energy Consumption (by sector): Alabama's industrial sector consumes 45 percent of the state's energy, followed by transportation (23%), residential (19%), and commercial (13%).



Source: Energy Information Administrative, SED 2006

Energy Consumption (by source): Nearly a third of Alabama's energy springs from coal sources, though it has an array of other significant sources as well, including petroleum (22%), natural gas (14%), net electricity (13%), nuclear (11%), and biomass (7%).



Source: Energy Information Administrative, SED 2006

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Alabama Department of Economic and Community Affairs: Energy, Weatherization and Technology Division (ADECA-EWT)

This Department provides assistance and services to citizens of the state through management and development of energy programs, the advancement of telecommunications and to foster the advancement of technology to strengthen the Alabama economy.

Home Energy Saver

The home energy saver is a web-based, Do-It-Yourself energy audit tool aiding residents in energy conservation.

Energy Education Program

Provides resources and opportunities for science and energy education to educators and students to learn about energy conservation measures that can be used in and out of the classroom.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Agriculture Energy Program

Assists industry in reducing energy costs and increasing production through education and financial assistance for the implementation of energy efficient technologies and renewable energy solutions for agriculture.

Local Government Energy Loan Program

Provides low-cost revolving loans for energy efficient projects undertaken by local governments in rural areas.

Schools Retrofit Program

Helps reduce energy expenditures in schools by purchasing and installing equipment and materials for energy efficiency measures.

Building Energy Codes: Residential

Voluntary code that allows builders, architects, home designers and code inspectors a simplified method to determine how to achieve certain energy efficiency ratings.

Building Energy Codes: Commercial
Mandatory building code for state government buildings administered by the Alabama Building Commission, to maximize the energy efficiency of new state buildings and reduces energy costs to Alabama taxpayers.

Code College
On-line training center to participate in objective, industry-sponsored online training from national experts, available 24/7 for the ultimate convenience of the building professional.

State Buildings Energy Efficiency Program
Partnership of Alabama Department of Economic and Community Affairs (ADECA) and the Alabama Department of Finance to promote energy savings in state buildings.

Industrial Energy Efficiency Program
Promotes energy efficiency opportunities to small and medium sized manufacturers to improve their profitability by reducing their energy costs. The program also provides education and training on the use of alternative energy sources and lean productivity processes in manufacturing.

Local Government Energy Loan Program
Provides low-cost revolving loans for energy efficiency projects undertaken by local governments and K-12 Public School Systems in Alabama.

Through a private/public partnership with PowerSouth and USDA, Alabama's *Local Government Energy Loan Program* offers zero-interest loans to local governments and schools in rural areas for renewable energy systems and energy efficiency improvements that will eventually have a payback through utility savings. Under the program, municipal and county governments may borrow up to $350,000 for eligible projects, and qualifying schools may receive up to $350,000 per campus or $500,000 per school system for eligible projects. Eligible renewable energy resources generally include biomass, hydropower, geothermal energy, wind energy and solar energy.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Biomass Energy Program
Assists businesses in installing biomass energy systems. Program participants receive up to $75,000 in interest subsidy payments to help defray the interest expense on loans to install approved biomass projects. Industrial, commercial and institutional facilities; agricultural property owners; and city, county and state government entities are eligible. With an initial emphasis on wood waste, the program also promotes landfill gas as a potential source of energy for industrial processes and other uses.

Renewable Energy Program
This program promotes the adoption of renewable energy technologies in Alabama (biofuels, biomass, solar and biogas).

School Geothermal Pump Grants
Grants worth up to $25,000 per school system for geothermal installation in schools as a lead by example type initiative.

Agriculture Energy Program
Annually sponsors the Alabama Agriculture Energy Conference to disseminate information about current projects and to address relevant energy issues within the agriculture community.

Sugarcane for Processing into Jet Fuel
Research and development project for planting 100 acres with sugarcane to be processed into jet fuel and also provides economic opportunity for farmers in south Alabama.

Biofuels for Schools Grant Program
Grants up to $2500 of the cost of cleaning fuel tanks in preparation for storage of B20 which is a blend of 20 percent biodiesel and 80 percent of conventional diesel fuels.

Biofuels Research and Development
Facilitates scientific research and development through the Alabama Research Alliance (ARA) for agricultural research and development activities related to biofuels (E.O. 37, 2007).

Alternative Fuels Promotion and Information
Center for Alternative Fuels established by law to promote alternative fuels as a viable energy source in the states. The Center will assess the current status and development of sources of alternative fuels and ensure that all alternative fuels meet ASTM standards. The Center acts as an information center and a clearinghouse for federal grant funding.

Alternative and Renewable Energy Act of 2008
Provides capital income tax credits for tax years beginning after December 31, 2011, through December 31, 2018, for new facilities or expansions owned by certain utilities with capital costs of not less than $100 million, if the predominant trade or business will be the production of electricity from alternative energy resources, or $5 million, if the predominant trade or business will be the production of electricity from hydropower production.

Green Power Purchase Programs
Alabama offers several voluntary *green power purchase programs*. The TVA's *Green Power Switch Program* offers consumers the opportunity to purchase green power (landfill gas, wind and solar photovoltaic) in place of conventional power sources. Other statewide Green Pricing programs include the Alabama Electric Cooperative, which uses landfill gas and the Alabama Power Company's Renewable Energy Rate Program, which offers power from biomass co-firing.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

TVA Green Power Switch Program
The *TVA's Green Power Switch Generation Partners* program offers production-based incentives for solar photovoltaic (PV) and wind projects to residential/small-commercial customers and incentives for PV

projects to large commercial customers. The energy generated from participating projects will be counted toward the green power resources for TVA's green pricing program, Green Power Switch.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Southeast Regional Carbon Sequestration Partnership (SECARB)

The University of Alabama has been a leading research partner in SECARB since its inception in 2002. SECARB is one of seven regional partnerships funded through the U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) devoted to the development and deployment of viable carbon sequestration technologies. SECARB is a diverse partnership managed through the Southern States Energy Board (SSEB).

The Power System Development Facility (PSDF)

Located in Wilsonville is a joint effort of the DOE National Energy Technology Laboratory and several of the world's leading energy technology and supply companies to develop advanced coal technologies. The $427.0 million project ($366.5 million from DOE's Fossil Energy Program) is used to evaluate advanced power generating and environmental control technologies that could ultimately form the core of 21st century power plants. Included in the testing program will be new technologies for pressurized fluidized-bed combustion, integrated gasification combined-cycle, an advanced gasifier, innovative ways to clean impurities from hot coal gases, a low-polluting combustor/gas turbine configuration and a fuel cell.

Southern Company and Kellogg, Brown & Root Gasifier Demonstration

A demonstration of the 285MW Coal-Based Transport gasifier is being developed by Southern Company and Kellogg, Brown & Root based on KBR's catalytic cracking technology which has been used for decades in petroleum refineries. The transport gasifier offers a simpler, more robust method for generating power from coal than other available alternatives. The total cost for the demonstration project is $844.3 million, of which DOE plans to contribute $293.7 million as the federal cost share.

Southern Company Biomass Co-Firing Plant

Southern Company operates a biomass co-firing plant in Gadsden. The plant, which began operation in 2001, co-fires in the five to 10 percent range and uses about 500 tons of switchgrass each year.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

TVA's Bellefonte Nuclear Generating Station

Nuclear power will be significantly expanded in the future that will provide additional CO_2 emission reductions. The Tennessee Valley Authority's Bellefonte Nuclear Generating Station in Hollywood, Alabama is home to two unfinished plants. Both were mothballed in 1988 after a $6 billion investment. Although the construction permits were terminated on September 15, 2006, TVA is investigating completion of these first two units with operation projected to start sometime between 2017 and 2020. Units 1 and 2 have a projected capacity of 1212 MW. Additionally, on September 22, 2005, it was

announced that Bellefonte was also selected as the site for two AP1000 pressurized water reactors to be called Units 3 and 4. TVA filed the necessary applications in November 2007 to begin the design and construction process. In February 2009, the TVA construction permit was reinstated.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Southern Research Institute of Birmingham

In December 2007, (DOE) announced the selection of Southern Research Institute of Birmingham as one of four biofuels projects in which DOE plans to invest up to $7.7 million. These projects will demonstrate the thermochemical conversion process of turning grasses, stover, the non-edible portion of crops and other materials into biofuel.

DOE "Super Boiler" (Alabaster, AL)

In November 2007, DOE announced the successful one-year operation of the first generation **"Super Boiler,"** at the Specification Rubber Products plant in Alabaster, Alabama. The next generation boiler can deliver 94 percent thermal efficiency, while producing fewer emissions than conventional boiler technologies. By 2020, this technology could save more than 185 trillion British Thermal Units (Btus) of energy – equivalent to the natural gas consumed by more than two million households. The United States' Industrial sector accounts for over 32 percent of the Nation's energy use and new technology used in this Super Boiler represents great potential for energy savings. DOE's Industrial Technologies Program has supported the development of the Super Boiler since research and development began in 2000 with $4.2 million in funding over that time period.

University of Alabama

In September 2008, the Department of Energy (DOE) announced the University of Alabama as one of 15 projects that will receive funds totaling $67.6 million under the Funding Opportunity Announcement (FOA), Advanced Heat Transfer Fluids and Novel Thermal Storage Concepts for Concentrating Solar Power Generation. The projects will facilitate the development of lower-cost energy storage for concentrating solar power (CSP) technology. The University of Alabama will receive up to $1.9 million to develop low melting point molten salt storage media with high thermal energy density for sensible heat storage.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Center for Alternative Fuels (H.B. 123, 06.14.2007)

Established within DOA to promote alternative fuels as a viable energy source within the state; to assess development status of alternative fuel sources; to ensure that all alternative fuels sold in Alabama meet standards. The Center serves as a clearinghouse for available federal grant funding for alternative fuel development.

Alabama is home to three biodiesel production facilities with an annual production capacity of 55 million barrels. These include:

- Eagle Biodiesel in Bridgeport, 30 Mb/y

- Allied Renewable Energy plant in Birmingham, with an annual capacity of 15 Mb/y
- Perihelion Global in Opp, 10 Mb/y

Alternative Fuel Tax
An annual flat-fee state road tax for vehicles that operate on liquefied petroleum gas (LPG) and compressed natural gas (CNG).

I-65 Refueling Corridor
Federal grant funds as part of a project that will place 31 E85 stations along I-65 in Alabama, Tennessee, Kentucky and Indiana.

Mass Transit and Car Pooling

(includes increased funding; new and expanded systems; incentives)

RideShare Program
Federally-funded carpooling program created to help alleviate traffic congestion and reduce air pollution.

Other Activities

Education: Annual Alabama Agriculture Energy Conference
Distributes information regarding current projects and provides information about agricultural energy topics to the agriculture community.

Climate Registry
Alabama participates in the Climate Registry, which aims to develop a common system for entities to report greenhouse gas emissions. The Registry serves as a tool to measure, track, verify and publicly report greenhouse gas emissions consistently and transparently between states. Voluntary, market-based and regulatory greenhouse gas emissions reporting programs are all supported under the Registry.

Industry Report/Alabama Utility Emissions
According to utility Form 861 filings, the Alabama utility programs spent $13.3 million in 2006 on energy efficiency and conservation programs. Overall, these past and continuing energy efficiency investments have reduced Alabama 2006 electricity generation by 227,759 MWh or by 0.34 percent. These energy conservation efforts have reduced Alabama utility CO_2 emissions by 114,000-251,000 TPY. A listing and detailed description of these programs can be found at www.dsireusa.org.

State Contact Information

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ARKANSAS

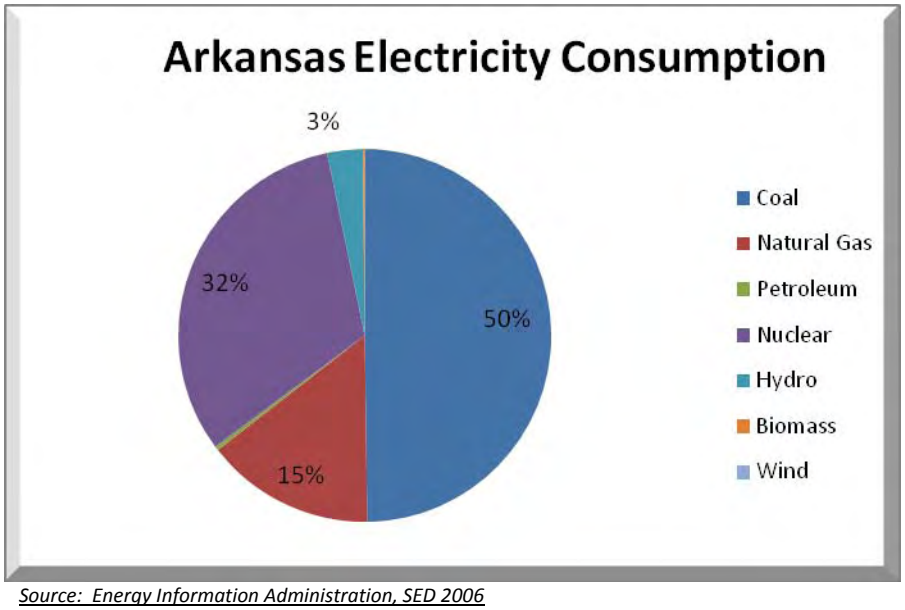
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

While Arkansas is a moderate energy production state by Southern standards, it does have substantial natural gas reserves in the Arkoma basin, as well as some oil and coal deposits in those areas. Arkansas also has large hydroelectric potential, as well as potential in other renewable sectors such as wind and wood waste in the form of biomass. Arkansas is reliant primarily upon coal and nuclear power plants for its electricity generation. About one-third of the state's electricity is generated by one nuclear power plant, while another 50 percent comes from the state's coal-fired facilities. In addition, Arkansas uses a significant amount of electricity derived from hydroelectric power plants along three primary waterways (White River Basin, Arkansas River and Ouachita River Bain) and produces about one percent of the annual Nation's output of natural gas, from which the state produces about 15 percent of its own electricity needs.

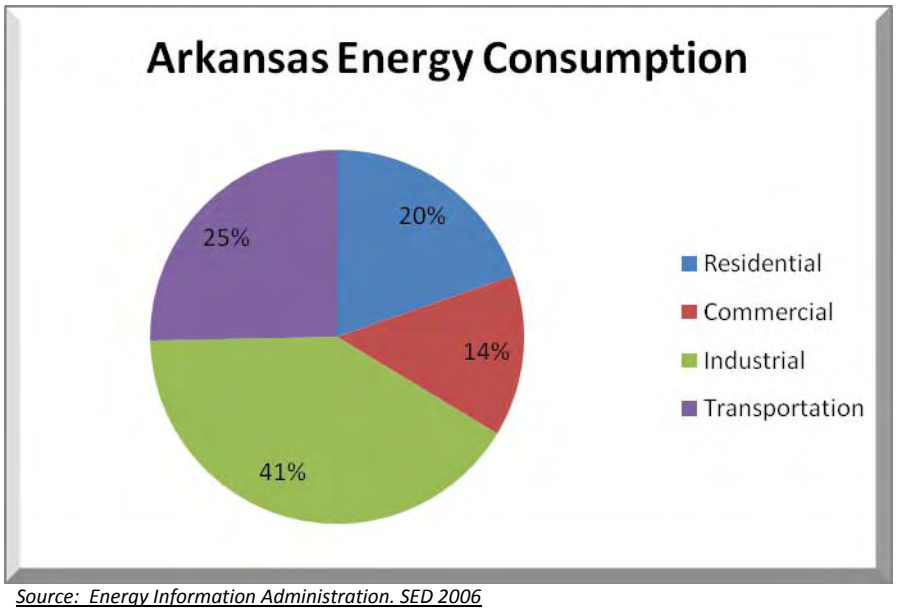
The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in the state:

Electricity Consumption (by source): Half of Arkansas's electricity consumed is generated by coal power plants, with a third coming from nuclear plants and most of the remaining represented by natural gas. A fraction of the state's electricity is provided by hydropower.



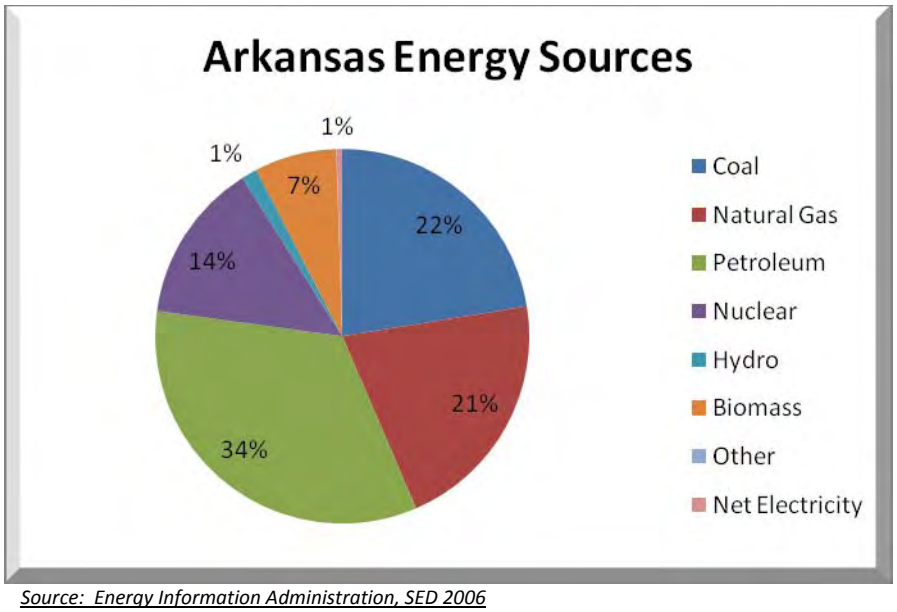
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): Arkansas consumes 41 percent of its energy in the industrial sector. Transportation takes a quarter of the state's energy, with the remaining divided between residential and commercial enterprises.



Source: Energy Information Administration. SED 2006

Energy Consumption (by source): Just over one-third of Arkansas's energy comes from petroleum sources. Natural gas and coal each account for just over another 20 percent of the state's energy production, with 14 percent coming from nuclear and seven percent coming from biomass sources.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation

(includes device; standard; outreach and education programs; financial incentive; conservation practices as part of decoupling; legislative mandate; local government initiatives)

Education

The Arkansas Public Service Commission and the Arkansas Energy Office have jointly begun the Energy Efficiency Arkansas Program. This program is funded through a portion of utility rate payers' bills. It focuses on two major education groups: 1) Commercial & Industrial and 2) Residential. This education initiative includes outreach, training and marketing.

The Arkansas Energy Office recently completed a five-part webinar, in cooperation with the Office of State Procurement, on training in Life Cycle Cost decision making for state government.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Green Building Standards

The Arkansas Energy and Natural Resources Conservation Act encourages all state agencies, including institutions of higher education, to use Leadership in Energy and Environmental Design (LEED) and Green Globes rating systems whenever possible and appropriate in conducting or funding a public building project; the Task Force on Sustainable Building Design Practices will make recommendations to enhance this legislation. One recommendation will change the preference for LEED or Green Globe rating to the establishment of a greenhouse gas (GHG) reduction target for state agencies. LEED and Green Globes rating will be an agency decision.

Arkansas is partnering with the Clinton Climate Initiative to provide staff and other resources for the implementation of energy efficient practices, including a pilot-retrofit of three to five state owned buildings.

Building Efficiency

Act 1494 of 2009 requires state agencies and higher education institutions to promote the conservation of energy and natural resources in buildings owned by the state and higher education buildings.

For state buildings, the Arkansas Energy Office of the Arkansas Economic Development Commission will develop and issue policies and technical guidelines to establish procedures and methods for compliance with the criteria and the performance standards for a major facility or a major renovation, and administer an energy management program and an operation and maintenance program designed to achieve compliance with state requirements through the implementation of energy conservation measures. Acts 754, 1363 and 1372 of 2009 established and appropriated state and federal Stimulus money to set-up a revolving loan fund for state agencies to utilize when making energy efficient improvements.

For the institutions of higher education, each institution will develop and issue policies and technical guidelines to establish procedures and methods for compliance with the criteria and the performance standards for a major facility or a major renovation, and administer an energy management program and an operation and maintenance program designed to achieve compliance with the requirements through the implementation of energy conservation measures.

The Arkansas Energy and Natural Resources Conservation Act encourages all state agencies, including institutions of higher education, to use LEED and Green Globes rating systems whenever possible and appropriate in conducting or funding a public building project.

Act 1597 of 2007 institutes to state agencies a preference for high efficiency lighting, where technically feasible, and if the price is competitive with consideration given to the long term cost effectiveness and savings.

A forthcoming "green" executive order will call for revision of procurement rules and regulations to enhance enabling legislation for the purchase of energy efficient products.

Arkansas is pursuing LEED certification for the Governor's Mansion.

Arkansas also was a partner in the National Governors' Association/Wal-Mart "Greening of the Capitols" initiative. Through this partnership, the Arkansas State Capitol and the Multi-Agency Complex (Big Mac), had thorough energy audits performed.

The Arkansas Energy Office plans to transfer federal Stimulus money to the Arkansas Department of Education for the establishment of a program to encourage school districts to purchase energy efficient equipment in new buildings.

Building Energy Codes
Residential: Arkansas Energy Code based on 2003 IECC with state-specific amendments is mandatory statewide.

Commercial: Arkansas Energy Code based on ASHRAE 90.1-2001 is mandatory statewide.

Act 1196 of 2009 requires all Arkansas cities and counties that issue building permits for new building construction to adopt the 2004 Arkansas Energy Code for New Building Construction, as it existed on January 1, 2009.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Biodiesel Incentive Act
The Arkansas Alternative Fuels Development Fund offers three types of grants: 1) a production grant of $0.20 per gallon of alternative fuel (up to $2 million); 2) feedstock processors can receive up to $3 million in grant funding for the construction or modification of feedstock processing facilities; and 3) distributors are eligible for up to $50,000 in grant funding for storage and distribution of alternative fuels mixture.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

Net Metering and Interconnection Standards

Facilities producing electricity using solar, wind, hydro, geothermal and biomass resources are eligible to interconnect and net meter; micro-turbines and fuel cells using renewable resources are also eligible; currently, net metering is available to residential systems up to 25 kW in capacity and nonresidential systems up to 300 kW; net-metered customers own Renewable Energy Credits (RECs).

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

Compressed Natural Gas

Arkansas Game & Fish Commission will soon begin pilot-testing of compressed natural gas (CNG) in commission owned vehicles.

Fayetteville Shale exploration is underway.

Act 977 of 2009 added compressed natural gas and other synthetic transportation fuels to a list of eligible projects for the Alternative Fuels Development Grant program.

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

Grid Enhancement

The University of Arkansas' Fayetteville, Little Rock and Pine Bluff campuses are jointly pursuing federal funding to research and develop enhanced grid capabilities using nanotechnology.

University of Arkansas' National Center for Reliable Electric Power Transmission is one of the most advanced transmission research facilities in the country and was dedicated in 2008.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

See Grid Enhancement above.

The Arkansas Biosciences Institute is actively working on developing second-generation biofuels, including cellulosic gasoline.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Environmental Loans for Small Business

The Arkansas Department of Environmental Quality has a small business loan program that provides low-interest loans to Arkansas small businesses to institute pollution control measures as required by state and federal law or to institute pollution prevention measures that reduce the amount of pollution produced by businesses.

Utility Rate Realignment

Decoupling in natural gas markets.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Alternative Fuel Grants

See the Biodiesel Incentive Act mentioned above under Renewable Energy.

Alternative Fuel and Vehicle Fleets

By January 1, 2009, all diesel-powered motor vehicles, light trucks and equipment owned or leased by a state agency must be operated using diesel fuel that contains a minimum of two percent biofuels by volume.

Electric Vehicle Equipment and Fuel Cell Income Tax Credit

This incentive is still on the books but has been subsumed by subsequent legislation. It is being repealed.

Liquefied Petroleum Gas Tax Reduction

Arkansas provides a gas tax reduction for liquefied petroleum gas to promote its use.

Advanced Travel Center Electrification

Arkansas Energy Office and the Arkansas Department of Environmental Quality have funded the installation of 24 spaces with Advanced Travel Center Electrification (ATE) technology to reduce greenhouse gases and petroleum consumption that occurs when truck drivers idle their engines to keep the cab and sleeper compartments at a comfortable temperature while they rest. ATE provides heat and air conditioning, power, Internet and phone connections, television and other services to drivers while they rest without requiring them to idle their truck engines. Each parking space equipped with the technology results in a net reduction of 47.5 tons of carbon dioxide annually.

Green Technology

(includes manufacturing applications; educational programs to enable green technology development)

Arkansas now has three windmill blade manufacturers that received state incentives to locate in the state.

- LM Glasfiber
- Polymarin Composites
- Nordex USA

Other Activities

Governor's Commission on Global Warming
In 2007, Governor Beebe established the Governor's Commission on Global Warming (Act 696 of 2007). The Commission represents a wide diversity of views and perspectives from business, industry, environmental groups and academia. The commission was charged with setting a global warming pollution reduction goal.

Legislative Task Force on Sustainable Building Design and Practices
Act 1336 of 2009 extended the Legislative Task Force on Sustainable Building Design and Practices. This task force continues to review, discuss, and advise on issues related to sustainable design and practices for buildings; monitor case-study projects and evaluate performance and outcomes relevant to high-performance building strategies; serve as a reference for educational resources; ask for a review of sustainable building design and practices performed by state agencies; develop goals and strategies to promote energy efficiency in state buildings; and identify and promote new and innovative air conditioning and heating products or services that conserve energy and reduce energy usage.

State Contact Information

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One Capitol Mall
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Little Rock, AR 72201
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FLORIDA

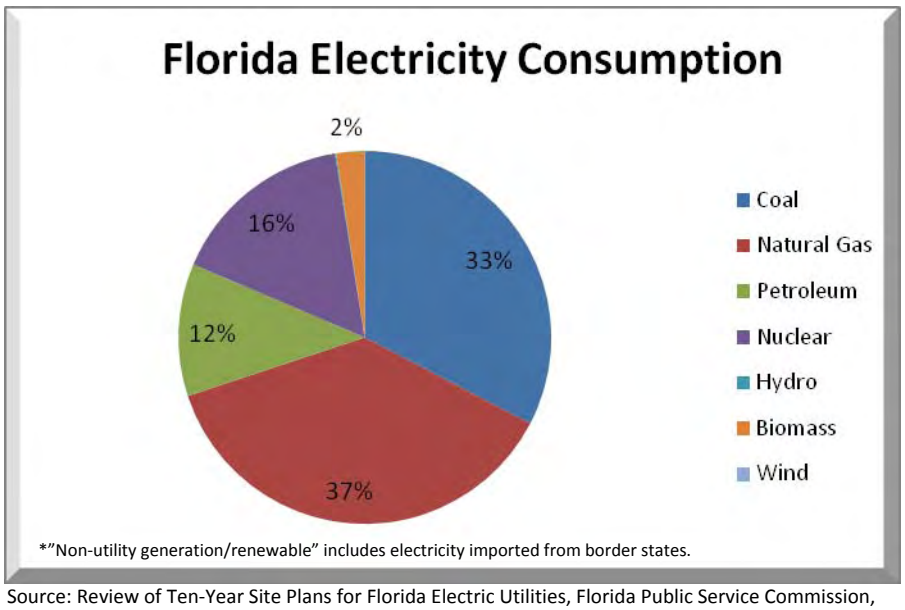
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Florida ranks 44th in per capita energy use in the Nation making it one of the states with the lowest consumption per capita largely because of the efficiencies in its industrial sector. Most of the electricity generated in the state comes from two sources: natural gas (39%) and coal (29%). The remainder of electricity is generated primarily from renewable sources (13%) and nuclear power (12%) while less than 10 percent of the state's electricity is petroleum generated. In addition, Florida leads the Nation in electricity generation from municipal solid waste and landfill gas and in petroleum-fired electricity in absolute terms. Florida varies greatly from many states in the region in terms of energy production. For instance, Florida has no coal mines, but instead relies on coal shipped in from other states like Kentucky and West Virginia. Further, Florida is one of a handful of states with tremendous opportunity in terms of oil and gas deposits since geologists believe that there may be large deposits off of Florida's western coast in the Outer Continental Shelf. In addition, because Florida is among the largest orange producing states in the Nation, it has a unique opportunity to take advantage of ethanol potential that may be developed from citrus peel waste.

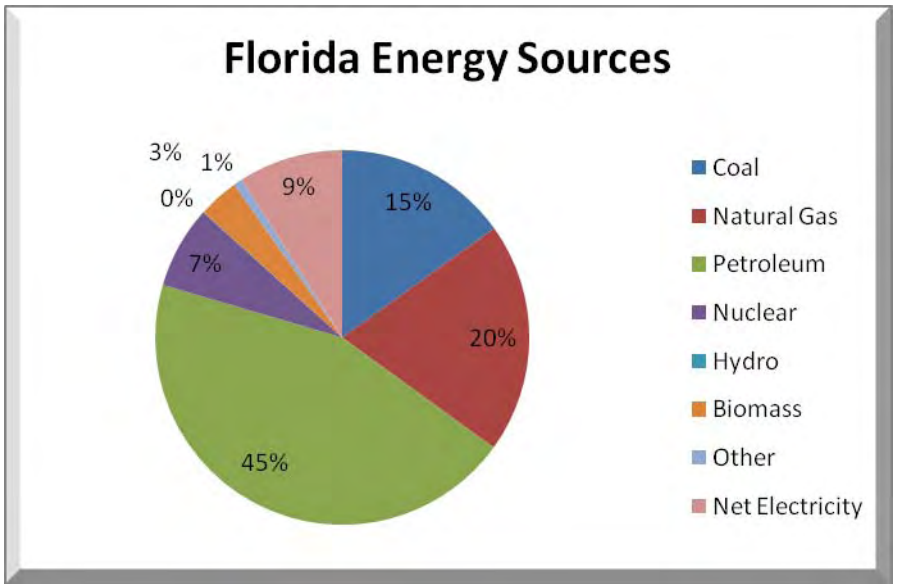
Florida also serves as a case study in terms of energy support in the South since most of its natural gas supply comes from other Gulf Coast States namely Mississippi, Alabama and Texas through two large pipelines. A new pipeline brings liquefied natural gas into the state from Georgia as well. The graphs below depict the distribution of electricity generation, and energy consumption by sector in the state.

Electricity Consumption (by source): Florida's electricity consumption mix reflects just over a third reliance on natural gas, another third on coal, and the remaining third derived from nuclear, petroleum, and biomass sources.



Source: Review of Ten-Year Site Plans for Florida Electric Utilities, Florida Public Service Commission, December 2008.

Energy Consumption (by source): Florida gets its energy principally from petroleum sources (45%), with a fifth deriving from natural gas and 15 percent from coal.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Overview

On July 13, 2007, Governor Charlie Crist signed three executive orders at the first Serve to Preserve Florida Summit on Global Climate Change:

- Executive Order 07-126 outlined aggressive energy efficiency and conservation measures for state government operations including requirements for LEED-NC for new state office buildings, LEED-EB requirements for the existing stock of buildings, biofuels for state vehicle fleets and several green procurement requirements for state agencies.

- Executive Order 07-127 set emission reduction targets for Florida and set into motion rulemaking to cap emissions from the utility sector, idling standards for diesel engines, Pavley GHG tailpipe standards for new vehicles sold in Florida, a requirement to increase the energy efficiency of the statewide building code by 15 percent by 2009, a 15 percent increase in the efficiency of regulated appliances sold in Florida by 2009 and a request to the Public Service Commission to adopt a 20 percent renewable portfolio standard, statewide interconnection standards for distributed renewables and a net metering standard at full retail rates up to one MW of distributed capacity.

- Executive Order 07-128 created the Governor's Action Team on Energy and Climate Change and provided for two deadlines for recommendations. The first report from the Action Team met the November 1, 2007 deadline by providing key recommendations that formed the basis of Florida's landmark 2008 Energy & Climate Change legislation. The Action Team concluded its

work on October 15, 2008 by submitting Florida's first Energy & Climate Change Action Plan to the Governor.

Each of these executive orders has produced tangible results. State agencies have complied with the requirements of EO 07-126 and are actively tracking energy and GHG emissions in a quarterly scorecard available at the Leading by Example site. The Department of Environmental Protection (DEP) has completed the diesel idling rule and the Florida Clean Car rule which is pending ratification by the Florida Legislature during the 2009 Regular Session; DCA is continuing with rulemaking as required under EO 07-127. The Public Service Commission has instituted the most aggressive net-metering standard in the Nation requiring retail reimbursement up to 2 full megawatts of capacity for distributed renewables, a consumer-friendly statewide interconnection standard, and a draft rule requiring a 20 percent Renewable Portfolio Standard for Florida which is likewise pending legislative ratification in 2009.

Governor Crist has also signed international partnership agreements with the United Kingdom and the Federal Republic of Germany to cooperate on policy and commerce related to global climate change, renewable energy technologies, and other clean technologies.

Summary of 2008 Florida Energy and Climate Change Legislation

During the 2008 Regular Session, the Florida Legislature unanimously passed the 2008 Florida Energy and Climate Change Bill (HB 7135), wide-ranging legislation affecting several facets of Florida's energy and climate change policy. Briefly, the legislation:

- creates the Florida Energy and Climate Commission (FECC) within the Executive Office of the Governor to centralize energy and climate change policy development and program implementation

- authorizes the Department of Environmental Protection (DEP) to develop "cap and trade" regulations for GHG emissions for sources in Florida subject to legislative ratification in the 2010 regular session

- expands key economic development programs to attract specific investments in the renewable energy sector to Florida

- requires a "10 by 10" Renewable Fuel Standard requiring that all gasoline sold for motor vehicles in Florida contain 10 percent ethanol in 2010

- requires the Public Service Commission (PSC) to develop rules for a renewable portfolio standard subject to legislative ratification in the 2009 regular session and provides cost recovery guidance to the PSC for renewable energy projects developed in advance of the final rule

- requires "major emitters" to report greenhouse gas (GHG) emissions via the Climate Registry

- reduces energy consumption and associated greenhouse gas emissions (GHG) from state, regional and local government operations by requiring public buildings constructed to meet recognized green building standards; consideration of energy and climate performance in vehicle, commodity, and meeting space procurement; active energy management among state agencies; and increased energy

and water efficiencies from government facilities through streamlining of existing statutes governing guaranteed performance savings contracts

- increases the role of energy efficiency in Florida's energy policy through revisions to the Florida Energy Efficiency and Conservation Act, providing goals for the Florida Building Commission to increase efficiency standards by 10 percent in each triennial review to achieve a 50 percent increase by 2019 and increasing efficiency requirements for certain appliances

- creates the Florida Energy Systems Consortium as a "super center of excellence" within the State University System to better coordinate energy-related research in support of Florida's energy and climate change policy objectives

- balances the need for expanded electric transmission infrastructure within Florida with the need for conservation land protection and informed public participation in the siting process by providing the terms and conditions for use of state lands, clarifying timelines in the transmission line siting process and increased public participation through new mail notice requirements and provisions for additional hearings for local residents

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentive; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Since 1980, Florida has used a statutory framework to manage energy efficiency and conservation for grid-supplied electricity.

Florida Energy Efficiency & Conservation Act (FEECA)

- Each utility subject to Florida's Energy Efficiency and Conservation Act is required by Florida Statute to offer energy audits to residential customers and must also provide energy audits for commercial/industrial customers.

- The Public Service Commission may authorize financial rewards to those utilities, over which it has rate-setting authority, which exceed their demand-side management goals, and assess financial penalties to those that fail to meet their goals.

- FEECA was amended by the 2008 Energy & Climate Bill to provide an incentive of up to 50 basis points for those utilities that offset 20 percent of new demand growth through baseload energy efficiency measures.

Decoupling

- The 2008 Energy & Climate Bill directed the Florida Public Service Commission to analyze utility revenue decoupling in an effort to promote conservation of energy and provide a report and recommendations to the Governor, the Senate and the House.

Utility Programs

- Residential New Construction Program encourages the design and construction of energy efficient homes by offering education to contractors on energy efficiency measures, and

Florida

providing design reviews and home inspections, based on the Florida Energy Efficiency Code for Building Construction.

- Residential Load Management Program offers load control of major appliances/household equipment to residential customers in exchange for monthly electric bill credits. Direct load control equipment is installed on selected customer end-use equipment, allowing the utility to control these customer loads as needed.

- GoodCents Commercial Buildings Program promotes the construction of commercial buildings and retrofit of existing commercial buildings with energy efficiency levels above the Florida Model Energy Code standards. The program provides GoodCents certifications to buildings which meet specified standards for HVAC efficiency and thermal envelope requirements which are above code.

Education & Outreach

- The Public Service Commission has partnered with the National Energy Foundation (NEF) http://www.nef1.org a nonprofit 501(c)3 educational organization dedicated to the development, dissemination and implementation of supplementary educational materials, programs and courses. They also prepare teachers to teach conservation in their courses. In cooperation with NEF, the Public Service Commission is providing educators with printed materials focusing on Florida-specific energy and water conservation in the home.

Energy Efficiency

(includes building; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

State Government Operations

Governor Crist issued Executive Order 07-126 requiring state government to measure greenhouse gas emissions and develop a Governmental Carbon Scorecard with reduction requirements at 10 percent by 2012, 25 percent by 2017 and 40 percent by 2025. State buildings constructed in the future must be energy efficient and include solar panels whenever possible. In addition, leased offices must be in energy efficient buildings and purchased state vehicles should be fuel efficient and use ethanol or biodiesel when available.

Building Energy Efficiency Codes

The 2008 Energy & Climate Legislation directed the Florida Building Commission to make periodic updates to the Florida Energy Efficiency Code increasing the energy efficiency requirements by at least 50 percent by 2019 as compared to the energy efficiency provisions of the 2007 Florida Building Code. The section requires the Commission to develop a cost-effectiveness test for proposed increases in energy efficiency.

Appliance Efficiency Codes

- Governor Crist issued Executive Order 07-127 that requires energy efficient consumer appliances to increase efficiency by 15 percent of current standards.

- The 2008 Energy and Climate Legislation defined energy efficiency requirements related to swimming pool pumps, swimming pool water heaters and potable water heaters.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Renewable Portfolio Standard

Pursuant to executive order and legislative direction, the Florida Public Service Commission has completed development of a draft Renewable Portfolio Standard that requires 20 percent renewable energy production for all public utilities within the state of Florida. The draft rule is pending legislative ratification during the 2009 Legislative Session.

Florida Programs and Statutory Requirements

- Florida Statutes require municipal electric utilities and rural electric cooperatives to develop standards for the promotion, encouragement and expansion of the use of renewable energy resources and energy conservation and efficiency measures. By April of each year, those utilities must submit a report to the Public Service Commission identifying those standards.

- Florida Statutes require the Department of Environmental Protection to provide planning guidelines and technical assistance to counties for developing regional approaches to capture, reuse or sell methane gas from landfills and wastewater treatment plants.

Renewable Energy Grants

- Florida provides grants for the development and deployment of renewable energy technology projects including solar, wind, biomass and biofuels.

- Florida's "Farm to Fuel Grants Program," is a public-private partnership that promotes the production and distribution of renewable energy from Florida-grown crops, agricultural wastes and residues and other biomass to enhance the value of agriculture products or expand agribusiness in the state. The program provides matching grants for demonstration, commercialization, research and development projects relating to bioenergy.

Municipal Programs

- Nation's first Municipal Solar Feed-In Tariff
  The City of Gainesville, Florida will begin a solar feed-in tariff program in 2009. Gainesville's solar fee-in tariff would allow Gainesville Regional Utilities (GRU) to purchase solar energy from investors (ranging from large companies to residents with solar panels on their rooftops) for at least 20 years. The price GRU will pay for this solar energy would allow investors to make a profit. GRU's cost for paying for this solar energy will be passed on to their customers. The cost to customers is capped at about $1.5 million a year. Spread out among GRU customers, that would mean a 1.5 percent increase in base electricity rates.

Utility Programs

- SolarWise for Schools program
  Progress Energy's SolarWise for Schools program was created to purchase solar energy systems for Florida schools in its 35-county service territory. The SolarWise for Schools program

advances the use of renewable energy through the installation of solar energy systems, also known as photovoltaic (PV) systems, and supports solar-energy education initiatives for students. Progress Energy customers can participate in SolarWise for Schools by enrolling in EnergyWise, the company's energy management program. EnergyWise enables Progress Energy to temporarily cycle off power to select electrical equipment during periods of peak demand. In exchange, customers receive a monthly credit on their electric bill and have the option to contribute the savings to the SolarWise for Schools program.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

Florida Programs and Statutory Requirements

- Governor Crist's 2007 Executive Order (07-127) directed the adoption of the IEEE 1547 interconnection standard for customer-owned renewable energy devices statewide as well as a statewide net-metering standard that purchased distributed power at full retail rates.

- In March 2008, the Florida Public Service Commission adopted rules incorporating the IEEE 1547 standard and waived specific insurance requirements for customer-owned systems of less than 10 kW. The rule also included net-metering at full retail rates for customer-owned systems up to 2 MW in capacity.

- Each utility in Florida (investor-owned, municipally owned and cooperatively owned) is required by Statute to develop a standardized interconnection agreement for customer-owned renewable generation.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Florida Programs and Statutory Requirements

- Florida law provides for advanced cost recovery for the construction of Integrated Gasification Combined Cycle (IGCC) coal facilities for which carbon capture and storage (CCS) is included in the facility design and construction.

- The 2008 Energy and Climate Legislation authorized public utilities to include costs or expenses prudently incurred for scientific research and geological assessment of carbon capture and storage when such costs are incurred in joint research projects with state agencies and universities.

Southeast Regional Carbon Sequestration Partnership (SECARB)

Florida is a member of the Southeast Regional Carbon Sequestration Partnership (SECARB) being coordinated by the Southern States Energy Board. Its goal is to develop the necessary framework and infrastructure, conduct field tests of carbon sequestration technologies and evaluate options and potential opportunities for carbon sequestration in the Southeast.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

Incentives for Nuclear Energy Development

- Florida has the most progressive incentives of any state with respect to incentivizing the developing of new nuclear power. Florida Statutes allow for the advanced cost recovery by public utilities for the siting, design, licensing and construction of nuclear power plants, including transmission lines that are necessary to provide service from the nuclear facility.

- As a result, two investor-owned utilities are in the process of up-rating existing facilities (580MW by 2012) and building two new facilities (4400 MW by 2020).

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

Florida Transmission Line Siting Act

- Florida's transmission siting process balances the need for expanded electric transmission infrastructure within Florida with the need for public and private land protection and informed public participation in the siting process. The 2008 Energy and Climate Legislation provided terms and conditions for use of state-owned conservation lands, clarifying timelines in the transmission line siting process, and increased public participation through new mail notice requirements and provisions for additional hearings for local residents.

- The 2008 Energy and Climate Legislation expanded demand-side management planning by utilities to include efficiency investments across generation, transmission and distribution as well as efficiencies within the user base.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Florida Energy Systems Consortium – Florida's State University System

- The 2008 Florida Energy & Climate Legislation created the Florida Energy Systems Consortium, to promote collaboration among experts in the State University System (SUS), to share energy-related expertise and contribute to an energy strategic plan for the state. The goal of the consortium is to become a world leader in energy research, education, technology and energy systems. The consortium shall coordinate and initiate increased collaborative interdisciplinary energy research among the universities and the energy industry, assist in creating and developing a Florida-based energy technology industry to expedite commercialization of innovative technologies achieved by coordination between the state's high-technology incubators, industrial parks and industry-driven research centers.

- The Florida Energy Systems Consortium received a $50M appropriation to begin operations.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Florida Programs and Statutory Requirements

- Governor Crist's 2007 Executive Order (07-127) directed the adoption of the IEEE 1547 interconnection standard for customer-owned renewable energy devices statewide as well as a statewide net-metering standard that purchased distributed power at full retail rates.

- In March 2008, the Florida Public Service Commission adopted rules incorporating the IEEE 1547 standard and waived specific insurance requirements for customer-owned systems of less than 10 kW. The rule also included net-metering at full retail rates for customer-owned systems up to 2 MW in capacity.

- Each utility in Florida (investor-owned, municipally owned and cooperatively owned) is required by Statute to develop a standardized interconnection agreement for customer-owned renewable generation.

Decoupling

- The 2008 Energy & Climate Bill directed the Florida Public Service Commission to analyze utility revenue decoupling in an effort to promote conservation of energy and provide a report and recommendations to the Governor, the Senate and the House.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

State Government Operations

- Florida Statutes require all state agencies to ensure all fleet vehicles meet minimum maintenance schedules and measure and report compliance to the state Department of Management Services through the Equipment Management Information System database. Procurement or leasing of the most fuel efficient vehicle in that class must be made by the purchaser. It also requires state agencies to use ethanol and biodiesel blended fuels when available and to procure biofuels for fleet needs to the greatest extent possible.

Florida Programs and Statutory Requirements

- The 2008 Energy and Climate Legislation requires a "10 by 10" Renewable Fuel Standard requiring that all gasoline sold for motor vehicles in Florida contain 10 percent ethanol in 2010.
- The 2008 legislation requires the development of a "low carbon biofuels" standard based upon life-cycle analyses of biofuels to be implemented for biofuels being sold into the Florida RFS.
- Pursuant to the Governor's Executive Order 07-127, the Florida Department of Environmental Protection has implemented an anti-idling regulation for on-road diesel vehicles.
- Pursuant to the Governor's Executive Order 07-127, the Florida Department of Environmental Protection has completed rulemaking on the Florida Clean Car Standard adopting the California Vehicle Emissions Program which includes the Pavley requirements for greenhouse gas emission standards. The rule is pending legislative ratification during the 2009 regular session.

Incentives for Alternative Vehicles and Fuels

- Hydrogen and Biofuels Tax Exemption
  Hydrogen and biofuels are exempt from state sales tax.
- Hydrogen and Biofuels Investment Tax Credit
  Tax credits are provided for investments in hydrogen and biofuels production.
- Alternative fuel vehicles are permitted to use HOV lanes
  Encourages use of alternative fuel vehicles by providing permission for owners to use HOV lanes to encourage the use of such vehicles.
- Low Speed Vehicle Access to Roadways
  Low speed vehicles are permitted to use roads with speed limits of 35mph or less to encourage the use of mopeds, bicycles, etc. This encourages the use of low or no emissions vehicles such as bicycles, mopeds, etc. in place of conventional vehicles.
- Electric Vehicle Surcharge Exemption
  Electric vehicles are exempt from the surcharge applied to conventionally powered vehicles.
- Ethanol Production Credit
  Tax credit available to producers of ethanol.

Green Technology

(includes manufacturing applications; educational programs to enable green technology development)

Enterprise Florida

Enterprise Florida Inc. (EFI) is a public-private partnership serving as Florida's primary organization devoted to statewide economic development. EFI recognizes clean energy as a high impact sector which allows clean energy businesses access to tax, workforce and infrastructure incentives.

Green Jobs

(includes training; incentives)

Greenforce Florida

Greenforce creates secondary and post-secondary career pathways that are accessible and lead to progressively higher training and upward mobility in education and employment. Florida's goal is to create high quality alternative energy workforce education programs that are responsive to each community's unique workforce needs, and to produce prepared workers with portable credentials such as industry recognized certifications.

Other Activities

HB 0167 (passed)

ENERGY STAR appliance rebate passed both the House and the Senate.

- The American Recovery and Reinvestment Act funded the ENERGY STAR rebate that was created in the Energy Policy Act of 2005.
- The bill authorizes Florida Energy and Climate Commission to develop and administer consumer rebate program for specified energy-efficient appliances.

- The bill also authorizes the Commission to adopt rules and enter into contracts or memoranda of agreement with other state agencies, public-private partnerships and other arrangements for specified purposes.
- The bill also provides appropriation of $150 thousand to administer the program. Dollar amounts for the rebates of appliances must be approved by the Legislative Budget Committee.

SB 1154 – (failed)
General bill relating to energy.

- Mirrored the Public Service Commission package the Florida Energy and Climate Change Commission supported.
- Created a clean energy standard whereby 20 percent of retail energy sales would come from clean energy sources by year 2020.
- Included clean energy, but not limited to, biomass, solar, wind and nuclear.
- Created a carbon reduction fee to support deployment of natural gas for direct retail consumption.

State Contact Information

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Florida Energy & Climate Commission
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Fax: 850-922-9701 (fax)
www.dep.state.fl.us/energy/

GEORGIA

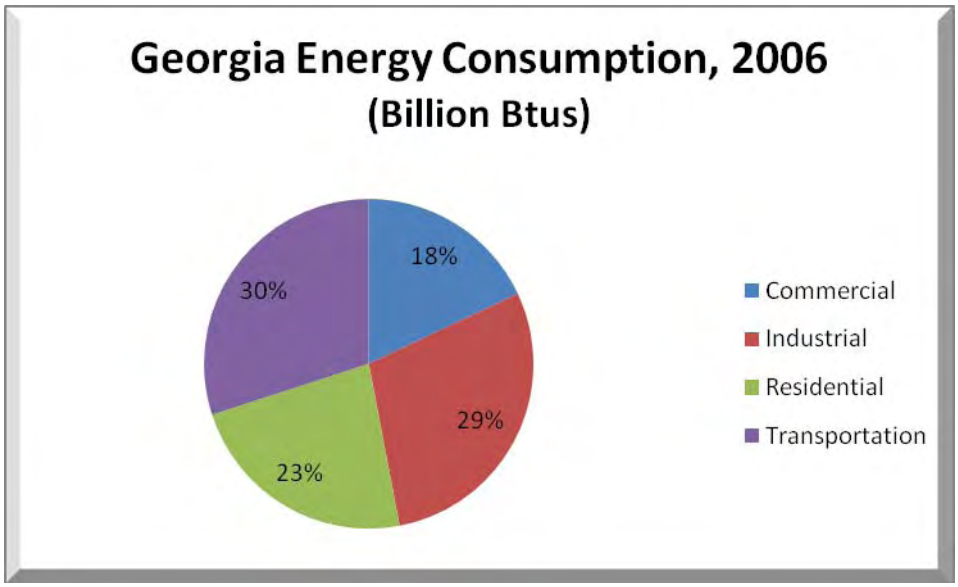
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Georgia ranks 26th in terms of per capita energy use in the United States primarily because it is a national leader in the wood and paper products industries, both of which are extremely energy intensive. The state derives about 60 percent of its electricity from coal, while another quarter comes from the state's two nuclear plants. The remainder of Georgia's electricity generation comes from natural gas generation (9%), hydroelectric (2%) and wood/wood waste (2%).

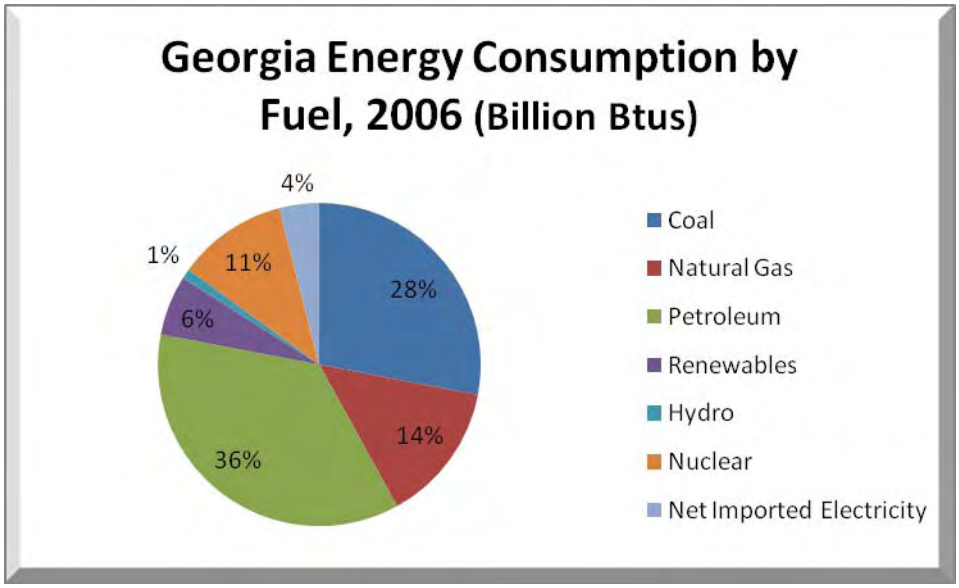
In terms of total energy production, Georgia boasts substantial hydroelectricity resources in several different river basins and great potential in terms of biomass. While the state imports much of its petroleum products from other Southern states, mainly Texas and Louisiana, it also has one of the five liquefied natural gas (LNG) import sites in the United States, located on Elba Island. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in the state:

Energy Consumption (by sector): Georgia's energy consumption is fairly evenly split into quarters between sectors. Transportation consumes 31 percent of the energy, followed by industrial consumption at 29 percent and residential consumption at 23 percent.



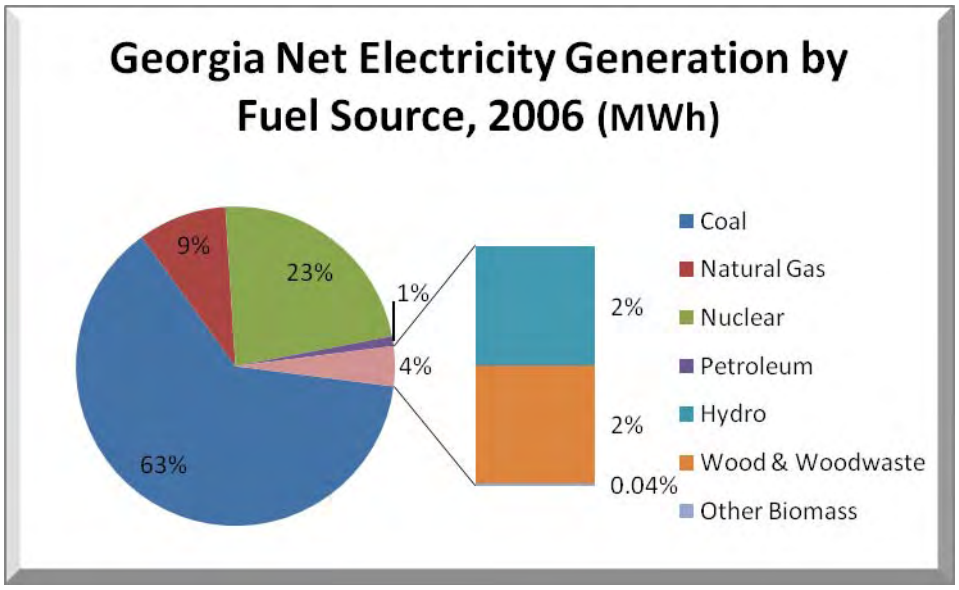
Source: Energy Information Administration

Energy Consumption (by source): Georgia's main energy source is petroleum (35%), followed by coal with the remaining mainly from natural gas, nuclear, and biomass.

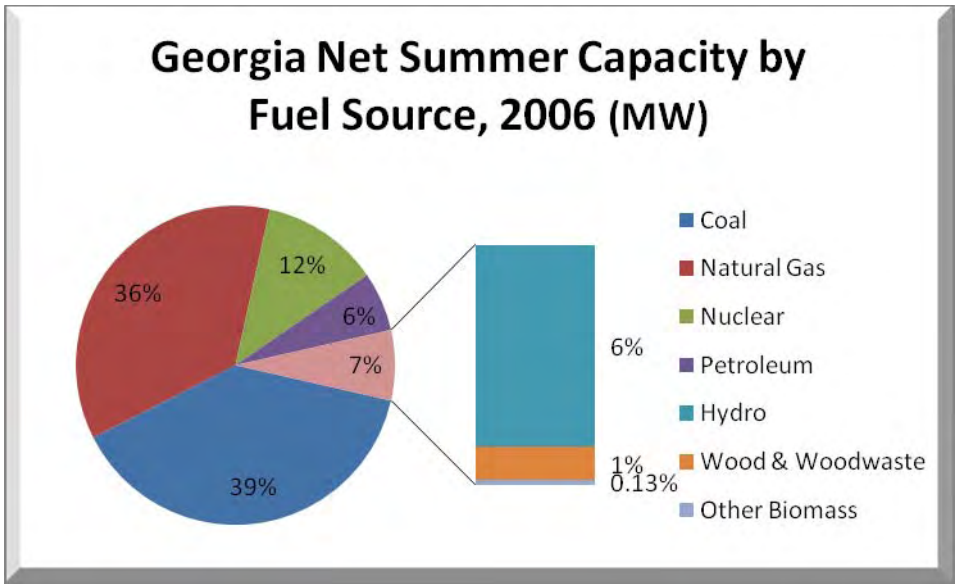


Source: Energy Information Administration

Electricity Generation (by source): Georgia electricity is generated primarily by coal, which represents 65 percent of the electricity use for the state. A quarter of the state's power is provided from nuclear sources. The remaining mix of energy comes from natural gas and hydroelectric power.



Source: Energy Information Administration



Source: Energy Information Administration

STATE INITIATIVES

Energy Conservation and Energy Efficiency

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiative; buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Governor's Energy Challenge

Combines a variety of elements from the ***State Energy Strategy*** into a comprehensive program to advance energy efficiency and conservation and clean energy in Georgia. A main component of the *Governor's Energy Challenge* is a commitment by state government to reduce energy use per square foot by 15 percent in state facilities by 2020. In conjunction with the state's energy goals, Georgia Governor Sonny Perdue challenged individuals, businesses, local governments, and others to reduce their energy consumption by 15 percent as well. To help the public match the Governor's reduction goals, a public education campaign and corresponding website were created to provide information, tools and incentives to help individuals, businesses and local governments achieve their energy reduction goals.

Clean Energy Property Tax Credit

Includes tax credits for certain types of energy efficient and renewable energy property as well as for the delivery of wood residuals to qualified biomass facilities.

Clean Energy Grant Act of 2009
Authorizes the Georgia Environmental Facilities Authority to administer a clean energy grant program for non-residential solar, wind, geothermal and energy efficiency projects.

Energy Efficiency and Sustainable Construction Act of 2008
Directs the Department of Community Affairs to create voluntary state facilities construction policies and procedures that recommend building standards that optimize energy performance, conserve energy, and utilize local and renewable energy sources, and that encourage obtaining ENERGY STAR designation.

Conserve Georgia
Georgia's statewide energy, land, and water conservation marketing and outreach campaign. By marketing Georgia's conservation programs together, *Conserve Georgia* helps reinforce the linkage between energy, water, land and the environment and the importance of incorporating energy, water, land and environmental strategies into any successful statewide planning effort.

State Facilities Energy Council
In 2006, Governor Perdue issued an Executive Order creating the State Facilities Energy Council. The Council is responsible for recommending energy policies, purchasing strategies, and optimization strategies for state facilities that will reduce costs and consumption of energy by state government.

The State Utilities Program (SUP)
Saves approximately $5 million annually and helps reduce energy consumption through the coordinated review and purchase of electricity and natural gas for state facilities.

The Work Away Initiative
A management option that allows selected employees to telework from home or other remote locations for one or more days per week. Under this program, more than 30,000 state employees now telework, saving almost five million commute miles each month. The program also includes compressed workweeks and other work schedule alternatives.

No Tillage Assistance Program
This program leases "no-till" equipment to farmers, reducing fuel use and greenhouse gas emissions, and sequestering carbon dioxide as soil carbon.

Telecommuting Tax Credit
Georgia recently created the Nation's first telecommuting tax credit. Under the law, qualified employers may receive a tax credit for up to $20,000 for planning, consulting, training, and/or raw labor costs associated with starting or expanding a telework program and an additional tax credit of $1,200 per new teleworker in 2009. Eligible expenses include equipment (computers, telecommunications, data entry and data processing), software and maintenance.

Idle Reduction Rule
The Georgia Environmental Protection Division (EPD) is working with stakeholders to reduce unnecessary diesel emissions associated with heavy-duty vehicle idling. Georgia is also supporting a pilot project to test the performance of idle reduction technologies for the trucking industry.

Efficient and Alternative State Fleet
Governor Perdue issued an executive order requiring the purchase of efficient and alternative fuel vehicles for the state fleet when cost effective. Currently, the state fleet has over 750 alternative-fuel vehicles.

Energy Performance Contracting
The State Facilities Energy Council is aggressively exploring the opportunity to utilize performance contracting to reduce energy use. These efforts will help reduce the state's energy bill that approaches $200 million annually.

Sales Tax Holiday
Georgia's ENERGY STAR and WaterSense sales tax holiday incentivizes the purchase of energy efficient appliances and household fixtures to encourage greater household energy conservation. Every year, Georgia has a four-day period where the state does not charge sales tax on the sale of appliances with a federally approved ENERGY STAR low energy-use rating. This year water efficient products were added to the list of items eligible for the tax holiday.

Weatherization Program
Works with low-income households to reduce energy costs by providing free home energy efficiency testing and solutions for low-income individuals and families. In FY2008, this program weatherized 2,509 homes, benefitting 4,114 low-income and elderly clients.

Energy and Environmental Task Force
Provides a quarterly education forum for state personnel working on energy and/or environmental issues to enhance their understanding of recent state and national developments and to promote sustainable practices in Georgia.

Georgia Tech Enterprise Innovation Institute's Energy and Environmental Management Center (EEMC)
Provides energy management, waste minimization and productivity assessment to business and industry through a variety of services.

State Energy Program (SEP)
Provides funding, program guidance, and administration for activities promoting energy efficiency and renewable energy. Programs and activities include energy code training, EarthCraft House, Building America and the Greenprints conference and tradeshow.

University of Georgia's Cooperative Extension Service
Helps transform Georgia's agricultural population and businesses into more efficient energy consumers through a number of programs identifying efficiencies in poultry house operation, crop irrigation, animal production systems, peanut curing and buildings.

University of Georgia's Engineering Outreach Service
Enables industries, communities, and agencies to improve their profitability, sustainability, and competitiveness by providing technical assistance, education and practical solutions such as energy audits, biofuel feedstock analysis and CO_2 foot printing.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Tennessee Valley Authority's Green Power Switch Program
Georgia participates in the TVA Green Power Switch Program, which provides production-based incentives for solar photovoltaic (PV) and wind projects to residential/small-commercial customers and incentives for PV projects to large commercial customers.

Energy Innovation Center
Established in April 2008 to encourage the growth of Georgia's bioenergy industry and to act as a facilitator between the academic, government, and private sectors. EIC teams with the state's other Centers of Innovation and the Department of Economic Development to support strategic industries and to create a pro-growth, innovative business environment. To date, EIC has assisted with the establishment of 16 biofuel production facilities in the state.

Bioenergy Corridor
Georgia is America's "Bioenergy Corridor" and with more than $600 million alternative energy-related projects active in Georgia, the state is emerging as a prominent leader in the bioenergy revolution. Over the next ten years, the bioenergy industry is projected to contribute nearly $5 billion to the state economy.

Public-Private Partnerships
The state's research institutions, including the Georgia Institute of Technology, the University of Georgia, and the Herty Advanced Materials Development Center, are providing R&D in support of cellulosic ethanol and other renewable energy alternatives. Both the Georgia Institute of Technology and the University of Georgia have received funds from the Department of Energy (DOE) as two of the partners in the BioEnergy Science Center (BESC), whose purpose is to develop cost-effective and sustainable means of producing biofuels from plants.

Industry Recruitment and Commercialization
In the last year, a dozen new ethanol and biodiesel facilities broke ground in Georgia, investing more than $460 million in our state's bioenergy industry and pledging to process over 215 million gallons of biofuel every year in Georgia.

- Bioenergy One Stop Shop
  Brings together representatives of local, state, and federal government to meet with bioenergy companies to address questions about doing business in Georgia. The streamlined process accelerates business startup by helping companies cut through bureaucracies and permitting processes.

- Streamlined Review and Permitting for Renewable Energy Facilities
  Governor Perdue signed an executive order speeding up the permitting and regulatory processes for all proposed renewable energy facilities in Georgia.

- Georgia Research Alliance
  With the guidance of an advisory group of energy industry executives, government leaders and university scientists, each of the Georgia Research Alliance core programs – GRA Eminent Scholars, Centers of Research Excellence and Commercialization – are playing a role in supporting research and development in renewable energy. In 2006, the Commission for a New Georgia recommended that GRA increase its pool of GRA Eminent Scholars engaged in research relevant to renewable energy. As a result, endowed chairs were established at the University of Georgia and the Georgia Institute of Technology and scholars were recruited, bringing to ten the number of GRA Eminent Scholars with an interest in research related to renewable energy.

Clean Energy Property Tax Credit
Georgia's Clean Energy Property Tax Credit reduces the upfront costs for a variety of renewable energy technologies including solar, wind and biomass. The income tax credit offsets up to 35 percent of the cost of the purchase and installation of technologies including solar, wind and biomass energy producing facilities. Between July 1, 2008, and December 31, 2012, $2.5 million in tax credits will be available each calendar year.

Clean Energy Grant Act of 2009
Authorizes the Georgia Environmental Facilities Authority to administer a clean energy grant program for non-residential solar, wind, geothermal and energy efficiency projects.

Biomass Sales and Use Tax Exemption
Exempts biomass materials from the state's sales and use taxes. Biomass material must be utilized in the production of energy, including the production of electricity, steam or both electricity and steam.

Wind Resources
Georgia state agencies are working with stakeholders to facilitate exploration of Georgia's offshore wind resources. Georgia Tech and Southern Company have partnered to explore the feasibility of an offshore wind farm off of Georgia's coast.

E85 Infrastructure Grant Program
In 2008, to increase the availability of E85 fuel to consumers, Georgia's E85 Infrastructure Grant Program funded 21 E85 fueling pumps at retail gas stations throughout the state. A second round of grants has been issued to support the installation of more pumps within the state's main transportation corridors.

Alternative Energy Demonstration Projects in Schools
To provide students and instructors with hands-on experience with solar technologies in a variety of courses, GEFA supported the installation of solar panels at Georgia Southern University. The solar electric system will be used as a teaching aid in engineering courses.

Promote Curriculum on Energy
In partnership with Green Power EMC and the Georgia Wind Working Group, GEFA provided assistance with a grant proposal to install wind turbines at two schools in north Georgia. The wind turbines will be part of a curriculum on renewable energy and will introduce students and the surrounding community to this clean, renewable energy resource.

Conversion of Plant Mitchell
In August 2008, Georgia Power announced plans to convert coal-fired Plant Mitchell to renewable wood biomass. Once converted, Plant Mitchell, originally a 288-megawatt (MW) coal-fired and combustion turbine facility, will be capable of producing 96 MW of renewable energy – or enough electricity to power approximately 60,000 homes.

Electricity from Biomass
In September of 2008, Oglethorpe Power Corporation (OPC) announced plans to build up to three 100 MW biomass electric generating facilities in Georgia. The power plants will utilize woody biomass and provide power to OPC's 38 member cooperatives, which supply electricity to nearly half of Georgia's population.

Commercial Cellulosic Ethanol Plant
The Nation's first commercial cellulosic ethanol plant is under construction in Georgia. The plant will use wood and wood waste from Georgia pine forests and mills as its feedstock, and will provide 20 million gallons of ethanol annually with the capacity to produce more than 100 million gallons a year.

Distributed Generation
(includes incentives; special back-up supply rates; standardized interconnection standards)

Distributed Generation
The Georgia Cogeneration and Distributed Generation Act of 2001 allows residential electricity customers with photovoltaic systems, wind-energy systems or fuel cells with a maximum capacity of 10 kilowatts (kW), and commercial facilities up to 100 kW, to connect to the grid. A utility is not required to enroll customers beyond 0.2 percent of its peak load for the previous year. Interconnected customers must comply with all national standards: Institute of Electrical and Electronic Engineers (IEEE), Underwriters Laboratories (UL) and National Electrical Safety Code (NEC).

Green Power Program
Georgia Power established a green-power program that allows the power generated by eligible renewable energy systems connected to the grid under the utility's net-metering provisions to be sold to other customers.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Advanced Coal Technologies

In July 2008, the Georgia Tech Research Corporation received a $1,620,479 grant from the Department of Energy (DOE) to develop a novel class of solvents, called "reversible ionic liquids," to capture CO_2 from coal-fired power plant flue gas. The Georgia Tech Research Corporation also has received DOE funding for two other advanced coal technologies research programs.

Southeast Regional Carbon Sequestration Partnership (SECARB)

Georgia is a member of the Southeast Regional Carbon Sequestration Partnership (SECARB) being coordinated by the Southern States Energy Board. Its goal is to develop the necessary framework and infrastructure, conduct field tests of carbon sequestration technologies and evaluate options and potential opportunities for carbon sequestration in the Southeast.

Oil and Oil Shale

(includes new sources of supply; incentives)

Support Greater Exploration of the Outer Continental Shelf (OCS)

To increase the supply of fossil fuels, including oil and natural gas, Georgia supports prudent exploration and drilling of the OCS.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

Support Greater Exploration of the Outer Continental Shelf (OCS)

To increase the supply of fossil fuels, including oil and natural gas, Georgia supports prudent exploration and drilling of the OCS.

Elba Island Terminal Expansion

Georgia is home to the Elba Island Terminal, which is one of five operational liquefied natural gas (LNG) terminals in the United States. Currently Southern LNG and El Paso Corporation are in the midst of expanding the terminal to increase the terminal's total storage capacity to 12 billion cubic feet (Bcf) by 2012. After the expansion, Elba's total peak send-out capacity will be 2.1 Bcf per day and its current baseload capacity of 161 Bcf per year will be expanded to 292 Bcf per year.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

Support Production of Electricity from Nuclear Generation

To supply emission free electricity, Georgia supports the construction of two new nuclear reactors at Plant Vogtle. The two Westinghouse AP 1000 reactors will provide 2,234 MW of baseload capacity to Georgia Power and municipal utilities. The partnership, referred to as the Southern Nuclear Operating

Company, Inc. is made up of Georgia Power (46 %), Oglethorpe Power (30 %), the Municipal Electric Authority of Georgia (MEAG Power) (23 %), and Dalton Utilities (2%). On March 17, 2009, the Georgia Public Service Commission approved Georgia Power's request for certification to build two new reactors at Plant Vogtle.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Georgia Research Alliance

With the guidance of an advisory group of energy industry executives, government leaders, and university scientists, each of the Georgia Research Alliance core programs – GRA Eminent Scholars, Centers of Research Excellence, and Commercialization – are playing a role in supporting research and development in renewable energy. In 2006, the Commission for a New Georgia recommended that GRA increase its pool of GRA Eminent Scholars engaged in research relevant to renewable energy. As a result, endowed chairs were established at the University of Georgia and the Georgia Institute of Technology and scholars were recruited, bringing to ten the number of GRA Eminent Scholars with an interest in research related to renewable energy.

University of Georgia's Biofuels, Biopower and Biomaterials Initiative (B3I)

Combines the University's expertise in agriculture, forestry, environmental science and engineering with its strengths in carbohydrate science, genetics and microbiology to research bioenergy production and to support an economic and sustainable bioenergy future.

Georgia Tech Strategic Energy Institute

Develops technologies, policies and educational programs that have the potential for offering high-impact solutions to pressing near-term energy issues.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Integrated Resource Plan

Georgia law (O.C.G.A § 46-3A-1) requires that every three years Georgia Power submit an Integrated Resource Plan (IRP) to the Georgia Public Service Commission (PSC). The IRP shows how Georgia Power plans to provide electricity to its customers over the next 20 years. The IRP includes Georgia Power's projections for its customers' demand but also details how Georgia Power intends to meet those demands through power plants, efficiency, and conservation. The IRP process dictates that Georgia Power develop the resources that prove the most cost-effective in meeting Georgia's energy needs. In requiring Georgia Power to evaluate demand side management programs (DSM) as a resource for meeting their forecasted loads, the IRP compels Georgia Power to also use energy efficiency as a cost-effective way to meet future demand instead of only building new power plants to meet future needs.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Idle Reduction Rule

The Georgia Environmental Protection Division (EPD) is working with stakeholders to reduce unnecessary diesel emissions associated with heavy-duty vehicle idling. Georgia is also supporting a pilot project to test the performance of idle reduction technologies for the trucking industry.

Efficient and Alternative State Fleet

Governor Perdue issued an executive order requiring the purchase of efficient and alternative fuel vehicles for the state fleet when cost effective. Currently, the state fleet has over 750 alternative-fuel vehicles.

Advanced Travel Center Electrification

Provides energy-efficient heating, ventilation and cooling systems for use by truckers at travel centers and other areas where drivers stop and idle their vehicles.

E85 Infrastructure Grant Program

In 2008, to increase the availability of E85 fuel to consumers, Georgia's E85 Infrastructure Grant Program funded 21 E85 fueling pumps at retail gas stations across the state. A second round of grants has been issued to support the installation of more pumps within the state's main transportation corridors.

Mass Transit and Car Pooling

(includes increased funding; new and expanded systems; incentives)

Clean Air Campaign

A non-profit that works with employers, commuters, and schools to promote and implement alternative commuting programs. The Clean Air Campaign and its partners offer assistance to more than 1,100 employers by designing and implementing commute options programs that make business sense; protect public health through the issuance of Smog Alert notifications; offer targeted incentives to commuters and employers; and work with schools to protect children from harmful pollution and empower children to take a positive role in reducing traffic and cleaning the air. Each day, these efforts help reduce traffic by more than 1.2 million vehicle miles and keep 600 tons of pollution out of the air.

Green Technology

(includes manufacturing applications; educational programs to enable green technology development)

University of Georgia's Biofuels, Biopower and Biomaterials Initiative (B3I)

Combines the University's expertise in agriculture, forestry, environmental science and engineering with its strengths in carbohydrate science, genetics and microbiology to research bioenergy production and to support an economic and sustainable bioenergy future.

Georgia Tech Strategic Energy Institute

Develops technologies, policies and educational programs that have the potential for offering high-impact solutions to pressing near-term energy issues.

Green Jobs

(includes training, incentives)

Energy Innovation Center

Established in April 2008 to encourage the growth of Georgia's bioenergy industry and to act as a facilitator between the academic, government, and private sectors. EIC teams with the state's other Centers of Innovation and the Department of Economic Development to support strategic industries and to create a pro-growth, innovative business environment. To date, EIC has assisted with the establishment of 16 biofuel production facilities in the state.

Innovative Legislation

Telecommuting Tax Credit

Georgia recently created the Nation's first telecommuting tax credit. Under the law, qualified employers may receive a tax credit for up to $20,000 for planning, consulting, training, and/or raw labor costs associated with starting or expanding a telework program and an additional tax credit of $1,200 per new teleworker in 2009. Eligible expenses include equipment (computers, telecommunications, data entry and data processing), software and maintenance.

Other Activities

Greenhouse Gas Inventory

Georgia's Environmental Protection Division (EPD) recently completed an update to Georgia's greenhouse gas inventory.

Greenhouse Gas Registry

EPD is also representing Georgia in the Climate Registry, an organization developing standardized means of measuring and reporting greenhouse gas reductions.

Carbon Sequestration Registry

The Georgia Forestry Commission developed a carbon sequestration registry to enable landowners to report carbon sequestration projects taking place in Georgia and to facilitate their participation in any regional, national or international carbon markets that emerge in the future.

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KENTUCKY

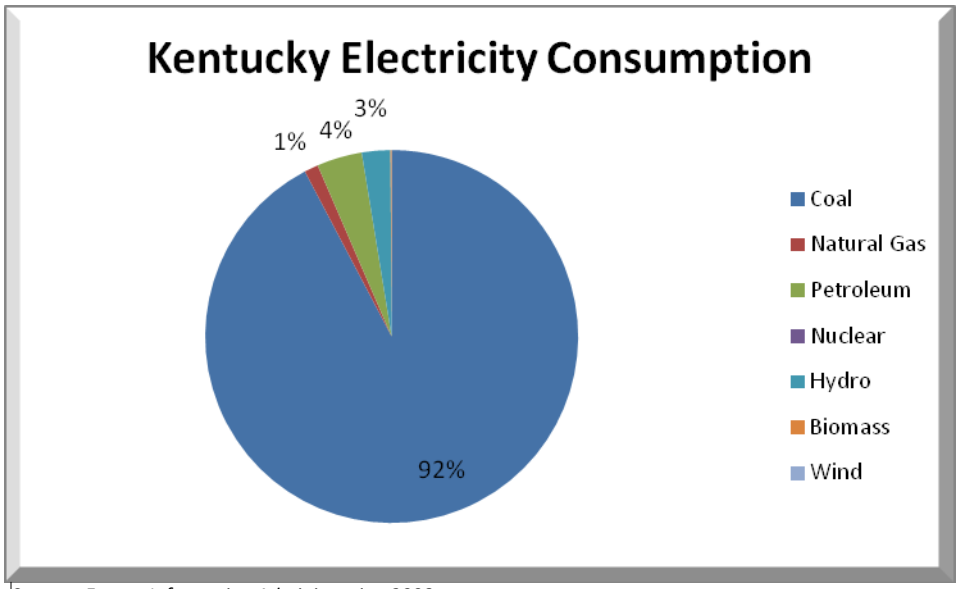
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Kentucky is one of the largest energy production states in the Nation. Even though the state is among the highest in terms of per capita energy usage, with Kentuckians consuming about 1,971 trillion Btu of energy last year, the state produced 3,176 trillion Btu of energy, making it one of the Nation's largest energy producers. Much of Kentucky's energy consumption is due to the state's aluminum industry. The state is able to sustain such an energy intensive industry and still be a net producer of energy primarily because Kentucky ranks third in the Nation in production of coal. In fact, 10 percent of the Nation's coal comes from Kentucky.

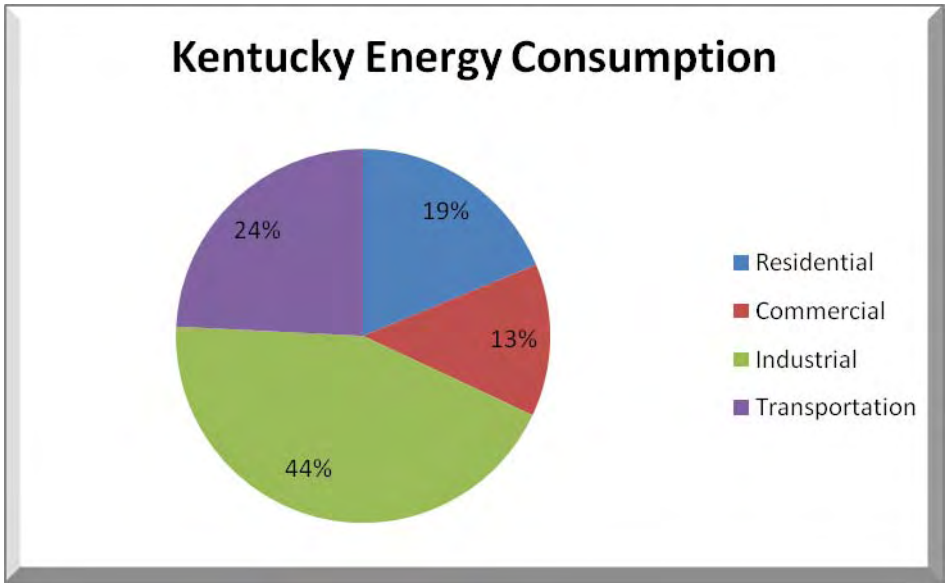
Kentucky is largely reliant on coal for electricity production (90%). The state also has two petroleum refineries in the state, and has great hydropower potential in the Ohio River Basin. While hydropower only accounts for about three percent of the state's electricity generation that number ranks Kentucky fifty in terms of hydroelectric production east of the Mississippi River. The state also uses biomass for about four percent of its energy needs. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in the state:

Electricity Consumption (by source): Kentucky's power mix is completely dominated by coal-generated electricity, with 93 percent of the state's electricity coming from coal sources. Only a small amount of its electricity comes from other sources, such as petroleum, hydroelectric power plants and natural gas.



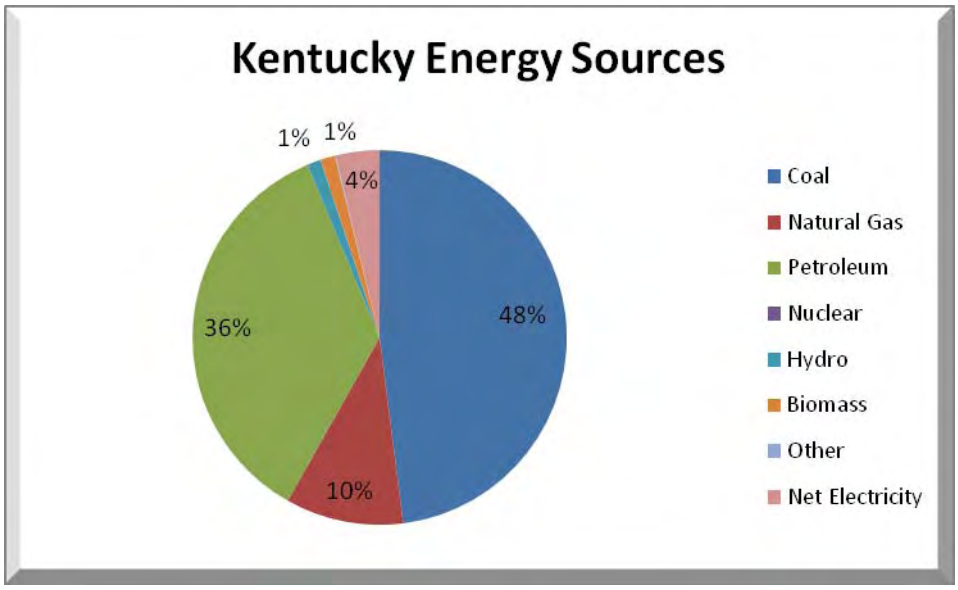
Source: Energy Information Administration 2008

Energy Consumption (by sector): The state's industrial sector consumes nearly half of Kentucky's energy, with a quarter going to transportation and the remaining third split between the residential and commercial areas.



Source: Energy Information Administration 2008

Energy Consumption (by source): Half of Kentucky's energy comes from coal sources, followed by petroleum at 36 percent and natural gas at 10 percent. The remaining mix of Kentucky's energy sources is net electricity, hydropower, and biomass.



Source: Energy Information Administration 2008

STATE INITIATIVES

Kentucky Energy Strategy – November 2008

http://www.energy.ky.gov/energyplan2008/

Intelligent Energy Choices is an action plan for Kentucky, released by Steven L. Beshear, Governor. The plan is intended, first and foremost, to improve the quality and security of life for all Kentuckians by creating efficient, sustainable energy solutions and strategies; by protecting the environment; and by creating a base for strong economic growth over the long term. Together the seven strategies identified in the plan will achieve these objectives.

1. Improve the energy efficiency of Kentucky's homes, buildings, industries and transportation fleet.
2. Increase Kentucky's use of renewable energy.
3. Sustainably grow Kentucky's production of biofuels.
4. Develop a Coal-to-Liquids (CTL) industry in Kentucky to replace petroleum-based liquids.
5. Implement a major and comprehensive effort to increase gas supplies, including coal-to-gas in Kentucky.
6. Initiate aggressive carbon capture/sequestration projects for coal-generated electricity in Kentucky.
7. Examine the use of nuclear power for electricity generation in Kentucky.

Specifically, the plan calls for a 20 percent reduction from 1990 levels in greenhouse gas emissions by 2025. Moreover, that is a 50 percent reduction from emission levels if Kentucky continues on its current pace of electricity and energy production, a pace that would require a dramatic increase in both production and demand.

In 2008 Governor Beshear reorganized state government to establish the Energy and Environment Cabinet (EEC) that included the Departments of Environmental Protection (DEP), Natural Resources (DNR) and Energy Development and Independence (DEDI). This structure elevates the importance of the state's energy programs and initiatives to help make Kentucky a national energy leader. By combining the energy department in the same cabinet as the other two departments, Kentucky is able to approach energy, environmental and natural resources issues in a comprehensive, holistic manner.

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Cooperative Extension Service Circuit Rider

EEC supports the University of Kentucky (UK) College of Agriculture to promote energy efficiency education throughout the Commonwealth. The support enables the Cooperative Extension Service to fund an ENERGY STAR circuit rider who travels across the state promoting ENERGY STAR at public events including home and garden shows, electric cooperative annual meetings, as well as a large exhibit at the Kentucky State Fair. The circuit rider connects with over 700,000 Kentuckians annually to promote energy efficiency and renewable energy.

Kentucky ENERGY STAR 'Change the World' Program
EEC, working with the nonprofit Kentucky National Energy Education Development (KyNEED) Project, offers grants to help schools, nonprofits and local governments educate the public about the benefits of substituting energy-saving compact fluorescent light (CFL) bulbs for traditional incandescent bulbs and implementing energy efficiency practices and appliances in the home and office. The Kentucky NEED campaign ranked 2nd in the Nation for pledges collected by non-profit organizations and reduced greenhouse gas emissions by over 5 million pounds while saving nearly $500,000 in energy costs.

Kentucky NEED Project
The KyNEED Project receives grant support from EEC for the design and delivery of an energy education program for teachers and students in grades K-12, and to support 20 NEED workshops throughout the state. KyNEED also collaborates with EEC in the production of the annual High Performance Schools Workshop. In 2008, Somerset High School was recognized as National Senior Level Rookie of the Year and the Kenton County School District, received NEED's National District of the Year award.

Bluegrass Energy Expo
EEC helped sponsor the annual Bluegrass Green Expo. The Lexington event offered the public an opportunity to learn about proven energy solutions, energy-saving products and services, as well as renewable energy choices that create a more sustainable and prosperous future for Kentucky. There were 2,376 people that attended the 2008 Expo with participation increasing each year.

Public Energy Awareness Program
Kentucky's recently released Energy Strategy establishes a goal for a public energy awareness program that will target both the general public and specific consuming sectors (agricultural, transportation, commercial, schools, etc.). The program will utilize partnerships, for instance with the state's universities and technical colleges and organizations such as, but not limited to, the Kentucky Cooperative Extension Service, the National Energy Education Development Project, Kentucky League of Cities and the Kentucky Pollution Prevention Center, to increase outreach capabilities. It will aggressively market and promote the efficiency tax incentives in House Bill 2 (from the 2008 Kentucky General Assembly).

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Kentucky Energy Efficiency Program for Schools (KEEPS)
Helps school districts and higher education facilities reduce energy consumption by offering a package of tools, curriculum, training, coaching and expertise. KEEPS uses the ENERGY STAR seven step guidelines for energy management and has compiled resources specific to Kentucky's schools to analyze and understand energy use. The KEEPS program addresses everything from lighting and HVAC, to natural gas usage to environmental best practices. KEEPS emphasizes proactive energy management and is designed to help educate school administrators and facility managers about energy use and management. Kentucky legislation was passed in 2008 that directs that all public school districts be enrolled in KEEPS by January 2010.

Kentucky ENERGY STAR Program

Kentucky supports the ENERGY STAR program to develop public-private partnerships that help protect the environment while saving consumers money through superior energy efficiency. These partnerships have helped Kentucky certify 55 ENERGY STAR buildings and over 2500 ENERGY STAR homes. In 2009, Kentucky began providing an $800 tax credit for ENERGY STAR certified site-built homes and a $400 tax credit for ENERGY STAR certified manufactured homes. This year the Louisville Metro partnered with ENERGY STAR to implement their "Kilowatt Crackdown" program. A voluntary program asks commercial building owners to report monthly energy usage and seek opportunities to become more energy efficient. In support of the initiative the county public school system enrolled all of their school buildings into the program.

High Performance Schools and Energy Management Workshops

EEC sponsors an annual workshop designed for school superintendents, board members, facilities managers, architects and engineers who want to apply high performance concepts to their next school construction or renovation project. These workshops have resulted in the construction of a number of high performance energy-efficient schools in Kentucky. Two Kentucky school districts are pursuing the design and construction of net-zero energy school buildings. Workshops help school districts approach energy efficiency with a comprehensive approach, including the creation of an energy team, education, technology, best practices and building design and retrofits.

Kentucky Energy Assessment Center

Working with the University of Louisville, EEC provided grant funding to the Kentucky Pollution Prevention Center to offer energy assessment and technology services to Kentucky's businesses and industries. These assessments help Kentucky's industries stay profitable and stay local. In 2008 the Center conducted 54 assessments that have identified over $218,000 in annual savings.

State Energy Savings Performance Contracts (ESPC)

EEC has assisted the Finance and Administration Cabinet to evaluate ESPC projects for state facilities across the Commonwealth. Agencies assisted include the Transportation Cabinet, Cabinet for Health and Family Services, Kentucky Community and Technical College System and the Department of Corrections. These projects have the potential of saving 20 to 35 percent in utility costs that represents an annual cost savings of over $5 million.

UK Energy Efficiency in New Construction Grant

Kentucky was awarded a competitive grant from the U. S. DOE to help teach builders and the public about the benefits of energy-efficient buildings. Partners include the University of Kentucky's (UK) College of Agriculture, Cooperative Extension Service; Kentucky Community and Technical College System (KCTCS) and EEC. UK has produced an Energy Efficiency Home Guide for Kentucky along with 40-hours of instruction materials that can be adapted to distance learning. Course materials also include a three-day "boot camp" for raters preparing for Home Energy Rating System (HERS) certification.

Kentucky Energy Strategy - Energy Consumption Reduction

Kentucky's recently released Energy Strategy sets a goal that by 2015, state-supported facilities will reduce energy consumption by 15 percent measured in energy per square foot per year using 2009 consumption as the baseline year. By 2025, state-supported facilities will reduce energy consumption by 25 percent as compared to the 2009 baseline year.

Kentucky Energy Strategy - Renewable and Efficiency Portfolio Standard and Alternative Transportation Fuels Standard

Kentucky's recently unveiled Energy Strategic Plan includes a Renewable and Efficiency Portfolio Standard and an Alternative Transportation Fuels Standard. Implementing both the REPS and ATFS will be key elements in meeting our GHG reductions coals. The REPS sets the goal of 25 percent of Kentucky's energy needs in 2025 will be met by reductions through energy efficiency and conservation and through use of renewable.

Energy "setbacks" for lighting, heating, and air in state facilities

In 2008, Governor Beshear ordered the state office buildings use a night and weekend setback plan to reduce lighting, heating, air conditioning costs when state offices are closed. Also new regulations require that all new construction and major renovations of state facilities must be designed to meet LEED (Leadership in Energy and Environment Design) or ENERGY STAR standards. Two initiatives were created.

- The first initiative will require new public facilities or renovations to existing facilities built with 50 percent or more state funds to be designed according to nationally recognized energy efficiency standards outlined in a rating system called Leadership in Energy and Environmental Design (LEED).
- The second initiative will require certain existing state-owned facilities to "set back" their use of lighting, heating, ventilation and air conditioning systems on nights and weekends to reduce energy consumption. It's estimated that the program could immediately save approximately $2 million a year by reducing energy use by 24 percent.

Clean Energy Corps

On February 26, 2009, Governor Beshear established a broad-based coalition of public and private sector partners who will launch a pilot program of energy efficiency improvement for 100 low-income Central Kentucky homes. The program will:

- Make these homes 20 to 30 percent more energy efficient, saving low-income families money, protecting the environment and reducing demand for utility assistance funds currently available to assist these families.
- Promote easy, everyday steps that all citizens can take to capture energy savings and reduce carbon emissions in their homes, so they can become energy managers.
- Engage Kentuckians--particularly our youngest generation--in volunteer service for their neighbors and communities.

First Lady Jane Beshear creates a Green Team

First Lady Beshear created an outreach program called the "Green Team." The team created a web site to provide energy efficiency tips and simple projects. Also, the Green Team held its first Online Film Festival in 2009. The online film festival is a new initiative designed to highlight sustainable environmental practices. During the summer of 2008, First Lady Jane Beshear asked Green Team members to send in their suggestions on how we can inspire, teach and encourage others to take steps to improve our world's environment. She was especially interested in ideas to involve the youngest generation of Kentuckians, who will inherit these problems if they are not addressed today. The winning submission, to host an online film festival in which Kentuckians could submit a film educating the public on energy conservation, was inspired by Syandene Evans, a freshman at Henry Clay High School in Lexington.

Public Service Commission Administrative Case 2008-408
As a result of President Bush's signing into law the Federal Energy Independence and Security Act, the Public Service Commission revised their authority as amended in the Act. The Act created four new standards which amended the Public Utilities Regulatory Policy Act of 1978. The new standards promote energy efficiency and smart grid investment.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Biodiesel Production and Blending Tax Credit
Legislation was passed that provided tax credits to the state to encourage the production of biodiesel and biodiesel blending.

Kentucky Solar Partnership
EEC has worked with the Kentucky Solar Partnership (KSP), which gives a voice to the community members who want the use of solar energy to flourish in Kentucky. The Kentucky Solar Partnership (KSP) was formed to give voice to Kentuckians who want the use of solar energy to flourish in our state. KSP goals are to: determine and break down barriers to the growth in number of solar installations in our state; generate informative resource materials; educate communities and students on the benefits of solar energy use; and demonstrate with appropriate, safe, code approved solar installations.

Ethanol Production Tax Credit
Legislation was passed allowing tax credits to producers of ethanol to encourage increased production. See link below—2008 Legislation, which provides tax incentives for certain renewable energy installations.
http://www.energy.ky.gov/NR/rdonlyres/B01C6CCB-0B6E-4864-9A96-938260D65AAD/0/HB2TaxCreditsTableSummary.pdf

Kentucky Energy Strategy - Renewables
Kentucky's recently unveiled Energy Strategic Plan includes a Renewable and Efficiency Portfolio Standard and an Alternative Transportation Fuels Standard. Implementing both the REPS and ATFS will be key elements in meeting our GHG reductions coals. The REPS sets the goal of 25 percent of Kentucky's energy needs in 2025 will be met by reductions through energy efficiency and conservation and through use of renewables. As part of the REPS, Kentucky sets as a goal that by 2025, Kentucky's renewable energy generation will triple to provide the equivalent of 1,000 megawatts of clean energy while continuing to produce safe, abundant and affordable food, feed and fiber.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

Interconnection and Net Metering
As a result of 2008 legislation, Kentucky PSC developed Interconnection and Net Metering Guidelines. These guidelines are intended to facilitate the use of net metering and interconnection of renewable energy generators by establishing interconnection and net metering guidelines for all retail electric suppliers operating in the Commonwealth, incorporating all applicable safety and power quality standards.

2008 legislation expanded Kentucky's net metering provisions: allowable sources are wind, biomass, and hydro and solar energy; the individual system size is 30 kW and cumulative limits per utility are .1 percent.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Carbon Management

The 2007 Legislature directed a collaborative report on carbon management related to existing and new electricity-generation units.

Funding from the Kentucky General Assembly has provided seed money to support the Kentucky Consortium for Carbon Storage (KYCCS) to determine the potential for geologic sequestration, enhanced oil and gas recovery and enhanced coal-bed methane recovery using carbon dioxide.

Furthermore, the Kentucky Carbon Management Research Group has been established—this consortium of major power companies, the University of Kentucky Center for Applied Energy Research and the Energy and Environment Cabinet will carry out a program to research, to develop and to demonstrate cost-effective technologies for reducing and managing carbon dioxide from existing coal-fired electrical power plants.

Climate Registry

Kentucky joined the Climate Registry in 2008. The Climate Registry is a nonprofit collaboration among North American states, provinces, territories and Native Sovereign Nations that sets consistent and transparent standards to calculate, verify and publicly report greenhouse gas emissions into a single registry.

Midwest Regional Carbon Sequestration Partnership (MRCSP)

Kentucky is a member of the Midwest Regional Carbon Sequestration Partnership. The Cincinnati Arch Geologic Test will demonstrate CO_2 sequestration in the Mt. Simon sandstone, a major CO_2 sequestration target for the MRCSP region.

Southeast Regional Carbon Sequestration Partnership (SECARB)

The Kentucky Geological Survey is a SECARB research partner. SECARB is one of seven regional partnerships funded through U.S. Department of Energy's National Energy Technology Laboratory (NETL) devoted to the development and deployment of viable carbon sequestration technologies. SECARB is a diverse partnership managed through the Southern States Energy Board (SSEB).

Oil and Oil Shale

(includes new sources of supply; incentives)

Synthetic Natural Gas/Transportation Fuels

Legislation in the 2006 Kentucky General Assembly directed the former Kentucky Office of Energy Policy (now the Kentucky Department for Energy Development and Independence) to develop and implement

a strategy for production of transportation fuels and synthetic natural gas from fossil energy resources (including oil shale and tar sands) and biomass resources.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

Kentucky Energy Strategy- Increase Natural Gas Supplies

Kentucky's Energy Plan recognizes the need to increase our energy independence with natural gas and establishes the goal for Kentucky to produce the equivalent of 100 percent of our annual natural gas requirement by 2025 by augmenting in-state natural gas production with synthetic natural gas (SNG) from coal-to-gas (CTG) processing.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

Kentucky Energy Strategy - Proposed Legislation

Kentucky currently has a statutory prohibition against nuclear power plants until a permanent federal storage site for nuclear waste is established. Two bills that would repeal that prohibition were presented in the 2009 Kentucky General Assembly session.

Kentucky's recently released Energy Plan recognizes that nuclear power will be an important and growing component of the Nation's energy mix and Kentucky must decide whether nuclear power will become a significant part of meeting the state's energy needs by 2025. The plan calls for Kentucky to examine the use of nuclear power for electricity generation and to develop and implement a public engagement plan to gather and address stakeholder feedback and concerns.

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

Kentucky's Energy Strategy

Calls for the following:

- Implement "smart" traffic control and transportation demand management strategies through actions by the Kentucky Transportation Cabinet.

- Establish a policy for "smart grid" development. Electric utilities must work in concert with the PSC to develop "smart grid" networks and technologies that will facilitate the next generation of DSM programs.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Center for Renewable Energy Research and Environmental Stewardship (CRERES)

Legislation in 2008 created the Center for Renewable Energy Research and Environmental Stewardship.

- Funding for carbon dioxide capture and storage research and development has been provided through the Kentucky General Assembly.

Energy Research and Development Grant for Renewable Energy
Annually the Kentucky General Assembly appropriates $3.5 million for research projects relating to clean coal, new combustion technology, thin-seam coal extraction, safety, tracking and communication devices, coal slurry disposal, synthetic natural gas produced from coal through gasification processes, and the development of alternative transportation fuels produced by processes that convert coal or biomass resources or extract oil from oil shale, and other coal research and shall be targeted solely to Kentucky's Local Government Economic Development Fund-eligible counties. The DEDI shall coordinate its efforts with those of Kentucky's universities and related Kentucky Community and Technical College System programs in order to maximize Kentucky's opportunities for federal funding and receive research grants and awards from federal and other sources of funding for the development of clean coal technology, coal-to-liquid-fuel conversion, alternate transportation fuels and biomass energy resources.

The General Assembly recognizes the importance of proactively addressing the issue of carbon management in existing coal-fired and natural gas-fired power plants, and the need for the development of technologies to address carbon emissions from all sources. Further, the General Assembly recognizes that it is vital for the economic well-being of the Commonwealth and its citizens that technologies and strategies for the capture, utilization, or mitigation of carbon dioxide emissions be developed and demonstrated. Therefore, included in the appropriation is a specified amount which shall be matched with federal or private funds for the purpose of supporting research and development activities at the University of Kentucky Center for Applied Energy Research directed toward the development and demonstration of technologies for carbon management. These technologies may include: chemical or mechanical capture, chemical or biological utilization, mitigation through the use of alternative fuel sources or other relevant technologies.

Kentucky Energy Strategy – Carbon Capture and Sequestration
A specific Strategy in the Energy Plan calls for the state to initiate aggressive carbon capture and sequestration projects for coal-based energy facilities in the state. The goal is that by 2025, we will have evaluated and deployed CCS technologies for 50 percent of the coal-based applications in the state.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Net Metering
2008 legislation expanded Kentucky's net metering provisions: allowable sources are wind, biomass, and hydro and solar energy; the individual system size is 30 kW and cumulative limits per utility are .1 percent.

Alternative Rate Structures
A study along with recommendations was conducted on alternative rate structures that provided recommendations for the alternative rate structure. Kentucky's Energy Strategy calls for the PSC and EEC to evaluate rate design and ratemaking alternatives to enhance the impact of cost-effective energy efficiencies.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Vehicle Acquisition Priorities and Alternative Fuel Use Requirement

The state adopted policies that require it to meet standards on purchasing alternative fuel vehicles as part of the state fleet and uses alternative fuels whenever feasible.

Liquefied Petroleum Gas Excise Tax Exemption

Liquefied Petroleum Gas (LPG) is exempt from the excise tax in Kentucky when used for motor fuel. This promotes the use of LPG rather than conventional fuels.

Kentucky's Energy Strategy – State Vehicle Fleet Fuel Economy

Sets the goal that by 2015, the state vehicle fleet fuel economy measured in miles-per-gallon will improve by 30 percent, or by approximately five miles-per-gallon as compared to a 2007 baseline. By 2025, the state vehicle fleet fuel economy will improve by 50 percent as compared to the 2007 baseline.

Kentucky's Energy Strategy- Alternative Transportation Fuel Standard

Kentucky's Energy Plan calls for an Alternative Transportation Fuel Standard to help us transition away from dependence on foreign petroleum. Kentucky can displace 60 percent of its reliance on foreign petroleum by utilizing fuels such as those derived from biomass and coal, plug-in hybrid vehicles and compressed natural gas.

Mass Transit and Car Pooling

(includes increased funding; new and expanded systems; incentives)

CarpoolKY

Governor Beshear announced the creation of an online tool making it easy for people to find ride-share partners and to encourage car pooling. See https://secure.kentucky.gov/governor/carpool/default.aspx for more information.

Green Technology

(includes manufacturing applications; educational programs to enable green technology development)

Kentucky Energy Assessment Center

Working with the University of Louisville, EEC provided grant funding to the Kentucky Pollution Prevention Center to offer energy assessment and technology services to Kentucky's businesses and industries. These assessments help Kentucky's industries stay profitable and stay local. In 2008 the Center conducted 54 assessments that have identified over $218,000 in annual savings.

Green Jobs

(includes training; incentives)

Kentucky's Energy Strategy– Biofuels Research

Calls for the Energy and Environment Cabinet to focus on initiatives that will expand Kentucky's biofuels research capacity. This focus will include programs such as "Bucks for Brains" which use state funds to match private donations to attract and retain some of the Nation's top researchers and scholars in biofuels.

Innovative Legislation

Incentives for Energy Independence Act

2007 legislation established the Incentives for Energy Independence Act. To date, over $1 billion in tax incentives has been approved. The incentives apply to any company that constructs, retrofits, or upgrades a facility to:

- Increase the production and sale of alternative transportation fuels
- Increase the production and sale of synthetic natural gas, chemicals, chemical feed stocks or liquid fuels, from coal, biomass resources or waste coal through a gasification process
- Generate electricity for sale through alternative methods such as solar power, wind power, biomass resources, landfill methane gas, hydropower or other renewable resources

Eligible Projects

Requirements to qualify for the incentives:

- Alternative fuel facility or gasification facility that is carbon capture ready and uses coal as the primary feedstock: the minimum capital investment is $100,000,000
- Alternative fuel facility or gasification facility that is carbon capture ready and uses biomass resources as the primary feedstock: the minimum capital investment is $25,000,000
- Renewable energy facility that meets the minimum electrical output requirement of at least one megawatt of power for: wind, hydro, biomass, landfill methane; or generation of 50 kilowatts for solar. The minimum capital investment is $1,000,000

Incentives

- Tax incentives available for up to 25 years, up to a maximum of 50 percent of the capital investment, via:
- Sales and Use Tax refunds up to 100 percent of tax paid on tangible personal property made to construct, retrofit or upgrade a facility.
- Severance Tax incentives up to 80 percent of taxes paid on the purchase or severance of coal.
- Tax Credits up to 100 percent of tax paid on corporate income or Limited Liability Entity Tax arising from the project. Wage Assessment incentives up to four percent of gross wages of each employee.
- Additionally, advanced disbursement of post construction incentives using a formula based on percentage of labor component in construction and the utilization of Kentucky

residents in construction phase may be available. Advance disbursements repayments may be based upon incentives earned in the future.

Comprehensive Energy Efficiency, Renewable Energy and High Performance Design Legislation: 2008 legislative session unanimously passed House Bill 2 that encouraged the use of renewable energy resources and energy conservation.

Incentives

- Encourage the development of renewable energy resources, the construction of energy efficient buildings and the purchase and installation of energy efficient installation, doors, windows, heating and air conditioning units in state owned facilities.

Tax Credits

- Established tax credits and provided funding sources to improve the energy efficiency of public and private buildings, as well as rebates for the building and selling of ENERGY STAR homes and manufactured housing.
- Tax credits for solar and wind systems installed on residential homes.
- Tax credits for commercial buildings to install energy efficient interior lighting system or HVAC or hot water system.

Programs

- Established a program to help finance public and private sector green building initiatives to reduce energy consumption.
- The creation of Kentucky's Center for Renewable Energy Research and Environmental Stewardship located on the campus of the University of Louisville. Henry Conn and his wife pledged $20 million to the center in order to support their activities. The center will provide leadership, research, support and policy development in wind, solar, geothermal and biomass resources as well as energy storage challenges.

Stimulus funding through the Recovery Act of 2009

Kentucky will received $63 million for alternative energy projects outlined in the Recovery and Reinvestment Act of 2009.

Kentucky Environmental Stewardship Act (KESA)

Any business entity that manufactures an environmental stewardship product which is a unique product that has a substantial positive impact on the environment can apply to Kentucky's Cabinet for Economic Development to receive tax incentives.

Eligible Projects

- A project must have at least $5,000,000 in eligible costs to participate in the program. Approved companies can potentially recover up to 25 percent of the project's fixed asset cost and 100 percent of employee skills training through the KESA tax incentives.

Tax Incentives

- A KESA approved company is eligible to receive a 100 percent credit against the Kentucky tax liability generated by the project. The tax liability associated with the project is determined by subtracting the base year tax liability from each year's tax liability after the project is activated. The tax incentive is available for recovery over a ten-year period or until the authorized incentive is realized. In addition, the company is

Kentucky

limited to a maximum of 25 percent of the authorized incentive in any single tax year. Any unused incentives remaining after the incentive agreement has expired are not accessible.

Other Activities

American Recovery and Reinvestment Act (ARRA) of 2009

Kentucky's initiatives in support of the ARRA of 2009 are designed to meet the stated objectives of the Act while providing the catalyst to help move Kentucky's energy plan priorities forward. Kentucky programs supporting ARRA include the following:

- **Kentucky Energy Efficiency Program for Schools (KEEPS)** – HB 2, passed in the 2008 Regular Session of the Kentucky General Assembly mandated that all K-12 public school districts enroll in KEEPS by January 2010. The proposed funding level provides meaningful support for the 174 districts by expanding the existing KEEPS program managed by the University of Louisville's Kentucky Pollution Prevention Center (KPPC). A system of regional coordinators, technicians and engineers will be available to guide districts through the process of implementing energy efficiency programs. The program would also provide stipend funding to Kentucky K-12 public school districts to support district-based energy program managers. The ultimate goal is to reduce annual building energy consumption by at least 10 percent. Kentucky school districts spend about $153 million annually for energy used in buildings.

- **Kentucky National Energy Education Development Project (NEED)** – NEED will hire four part-time regional coordinators, an administrative assistant and will purchase 300 kits for classroom use, 500 NEED memberships and will produce workshops and conferences for schools. Kentucky NEED is the state affiliate of the National Energy Education Development (NEED) Project, a national non-profit organization that was created in 1980 by a Joint Congressional Resolution.

- **Kentucky Green and Healthy Schools Program (GHS)** – Funding is provided for a program coordinator and for stipends (up to $500) for up to 200 schools to underwrite costs associated with energy-related projects at the schools. GHS is sponsored by the Kentucky Environmental Education Council (KEEC) and is designed to empower students and staff to make their schools greener and healthier by studying their learning environments.

- **High Performance State Government Buildings –**Funds will be used to purchase hardware and software for building management systems for facilities owned by the Kentucky Finance and Administration Cabinet, to hire an additional six staff to triple Energy Savings Performance Contract (ESPC) activity for state buildings, and to evaluate some 814 buildings as candidates for ESPCs. Funding will support the state Green Bank revolving loan fund that will finance energy efficiency and renewable energy upgrades in government buildings.

- **Farm Energy Efficiency and Renewable Energy Partnership** – EEC will execute a memorandum of agreement (MOA) with the Governor's Office of Agricultural Policy to implement an "On-Farm Energy Efficiency and Production Program." Under the program, Recovery funding will be used to supplement tobacco settlement funding to provide grants to farmers for on-farm energy

efficiency or renewable energy improvements. Farmers would be able to use grant funds to pay for professional services for energy assessments or the preparation of grant applications to the U.S. Department of Agriculture, thus opening the door to increased funding opportunities for Kentucky farmers. Funding will be provided in each of Kentucky's 120 counties where local boards will evaluate applications and select projects for funding.

- **Home Performance with ENERGY STAR (HPwES)** – Provides seed funding for a program that offers services to owners of existing homes to evaluate a home's energy efficiency, recommend cost-effective improvements, maintain a list of qualified contractors and provide a quality assurance service that verifies that improvements have been properly installed. This would serve the population that doesn't qualify for low-income weatherization services. The long-term goal is that the program will be self sustaining and complement utility demand-side management programs.

- **Industrial/Commercial Sustainability Program** –This program, modeled after the U.S. Department of Energy's Industrial Assessment Centers (IAC), would increase funding for KPPC at the University of Louisville to perform energy analyses at industrial, commercial and institutional firms or organizations. The program would also conduct energy efficiency workshops for target groups.

- **Utility Smart Grid Initiative** –Seed money is provided for Kentucky to establish a program in partnership with electric utilities to explore development of smart grid concepts and their possible application in Kentucky. The development of a smart grid has the potential to result in significant energy and cost savings for Kentucky ratepayers.

- **Commercial Office Building Retrofit Showcase –** Funding will provide for the purchase and installation of commercially available energy efficiency or renewable energy equipment and materials, including reasonable design costs, for the retrofit of a state government building to deliver a state-of-the-art Advanced Battery Strategic Planning facility. Such a facility may demonstrate energy efficiency and renewable energy techniques and technologies that will drive the facility toward net zero energy usage by incorporating technologies such as advanced applications of solar; geothermal heating and cooling; building envelope design and window construction. The Advanced Battery Strategic Planning facility will serve as a commercial building model with respect to energy efficiency and renewable energy for Kentucky as well as the Nation.

- **Industrial Facility Retrofit Showcase –** EEC will execute an MOA with the Cabinet for Economic Development (CED) to provide energy efficiency and renewable energy grants and incentives to industries relocating or expanding operations in Kentucky that create or retain "green jobs" while saving energy and reducing carbon emissions. Grants and incentives offered by CED will encourage programs and projects that introduce and demonstrate advanced energy savings and clean energy technologies in industrial and manufacturing facilities.

- **Energy Efficiency Battery Manufacturing Initiative –** EEC will execute an MOA with the National Alliance for Advanced Transportation Batteries (NAATBatt), a non-profit consortium comprising more than 50 corporations and associations, to support the purchase and installation of commercially available energy efficiency and renewable energy equipment and materials,

including reasonable design costs, for the construction of the advanced battery manufacturing facility to be built in Glendale, Kentucky. State-of-the-art energy saving and clean energy technologies incorporated into the advanced battery manufacturing facility will enhance the overall long-term success of the facility by reducing energy consumption and lowering operating costs.

State Contact Information

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LOUISIANA

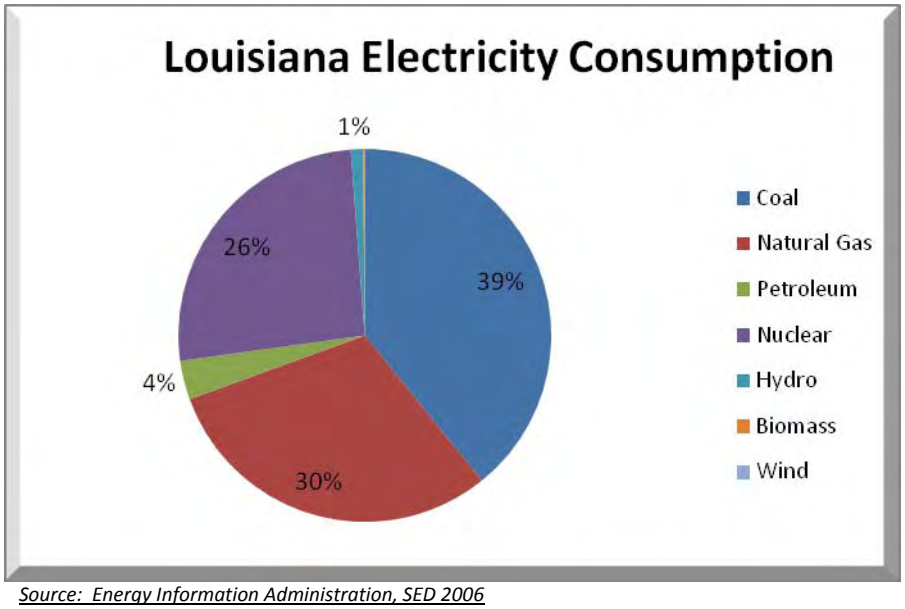
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Ranking fourth in the Nation in crude oil production and second in natural gas production, Louisiana boasts vast reserves of crude oil and natural gas. Approximately two percent of total U.S .crude oil reserves are found in Louisiana and the state's natural gas reserves account for approximately four percent of the U.S. total. Louisiana also imports about one-fifth of all foreign crude oil processed in the U.S., and processes more petroleum products than any state except Texas. Louisiana also delivers most of its natural gas production to other states via a network of interstate pipelines. The northeastern part of the state has minor deposits of lignite coal. With productive agriculture and forestry industries, Louisiana also has significant bioenergy potential in comparison to other states.

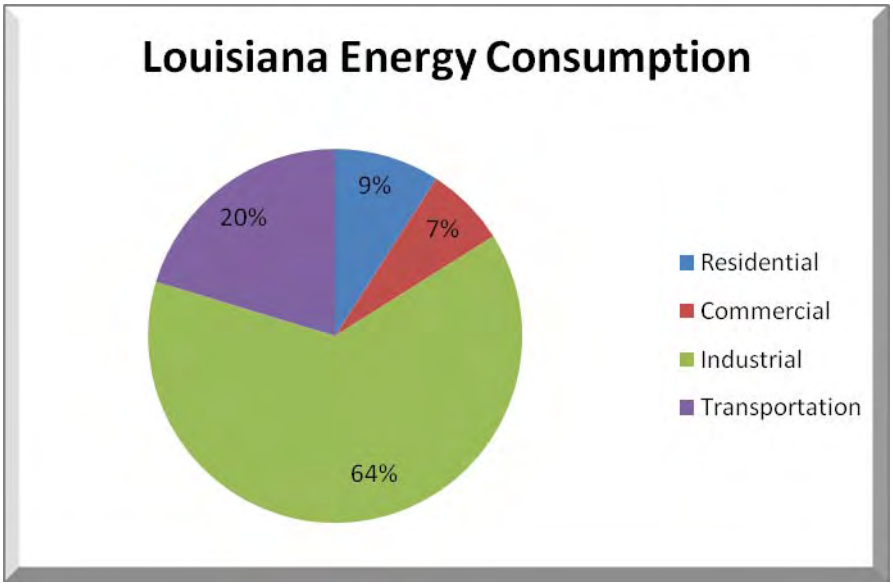
Louisiana natural gas accounts for nearly half of the state's electric generation, with coal accounting for another 25 percent, and the state's two single-reactor nuclear power plants producing about 20 percent. Hydroelectric generation accounts for a small portion of the state's electricity. The industrial sector consumes approximately 64 percent of the energy in the state. Driven by the industrial and electricity generation sectors, Louisiana's natural gas consumption is about 35 percent, ranking third among all states. Nearly one-half of Louisiana households use natural gas as their primary energy source for home heating. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in Louisiana.

Electricity Consumption (by source): Louisiana's electricity is generated primarily by coal power plants (40%) with the remaining electricity generated from natural gas and nuclear plants.



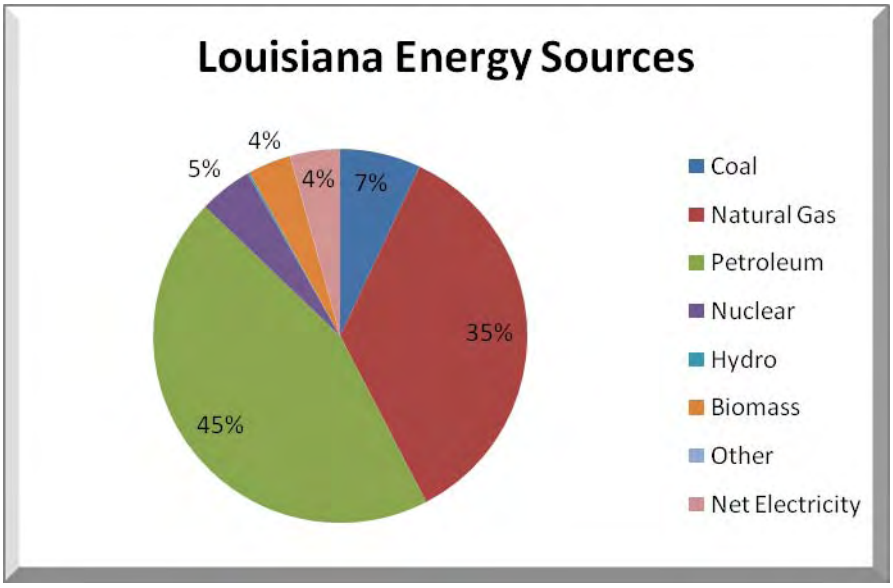
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): Louisiana's energy is principally consumed by the industrial sector, representing 64 percent of the state's electric energy, followed by a 20 percent transportation use. Residential and commercial each represent less than 10 percent of the state's energy use.



Source: Energy Information Administration, SED 2006

Energy Consumption (by source): Louisiana's main energy source is petroleum (45%), followed by natural gas (35%). The remaining energy sources of hydro power, nuclear, net electricity, and biomass individually each represent less than 10 percent of the state's energy.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Industrial Energy Conservation Outreach

The Louisiana Department of Natural Resources (DNR) recognizes companies and organizations that reduce energy consumption in their operations and institute innovative measures to save energy with the Outstanding Stewardship Award.

DNR hosts the annual Industrial Energy Technology Conference (IETC) to educate professionals involved in the production, use or transportation of energy or in designing and evaluating energy-related equipment and waste reduction practices.

Save Energy Now Program

DNR's State Energy Office partners with the Louisiana Industrial Assessment Center (IAC), of the University of Louisiana at Lafayette Mechanical Engineering in the College of Engineering to provide industrial energy efficiency assessments within the State of Louisiana. The program includes energy efficiency assessments for large industrial facilities, plant energy management plans, energy workshops, energy-saving technology demonstrations and implementation assistance.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Building Energy Codes

Residential: 2006 IRC mandatory statewide
Commercial: ASHRAE/IESNA 90.1-2004 and 2006 IECC for buildings not covered by ASHRAE, mandatory statewide.

Incentives – Loans, Rebates, Taxes, Etc.

Partners with lenders to offer homeowners a 5-year loan to improve the energy efficiencies of their existing homes; residents can apply to receive cash rebates for energy efficient improvements to existing homes – the amount of the incentive depends on the resulting energy savings, or Energy Efficiency Premium.

Appliance/Equipment Efficiency

Louisiana has set ENERGY STAR as the minimum performance standard for all purchases of appliances, light bulbs, smart charges and computers for state agencies.

Residential Energy Efficiency Outreach

DNR provided resources and assistance with the rebuilding of Louisiana's Gulf Coast after Hurricane Katrina, focusing on sustainability and energy efficient practices. DNR has provided over 50,000 copies

of their "Quick Notes on Achieving Energy Efficiency" booklet along with a DVD series to the Louisiana Recovery Authority's Road Home offices statewide.

Weatherization Assistance Program
Administered through the Louisiana Housing and Finance Authority (LHFA) to assist low-income homeowners by improving the energy efficiency of their homes.

Renewable Energy

(includes technologies; biomass bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Resolutions
Resolutions of 2009 by both the House and Senate urge and request support and assistance in providing funding for the Wood to Electricity Program being developed by the Wood Products Development Foundation.

Biofuels Feedstock Requirements
Renewable fuel plants in Louisiana that derive ethanol from corn must use corn harvested in Louisiana for at least 20 percent of facility's total feedstock. Facilities using soybeans and other crops to create ethanol must use at least 2.5 percent of feedstock grown in Louisiana.

HR 38 and SR 83 of 2009 Request the Department of Economic Development and the Department of Natural Resources to promote the clean use of alternative feedstock by the petrochemical industry; to benchmark incentives for companies that could use alternative feedstock; and to provide a report of such benchmarks and recommendations to the appropriate committees of the legislature at least two months prior to the opening of the 2010 Regular Session.

Biodiesel Equipment and Fuel Tax Exemption
The state provides a tax exemption on biodiesel equipment and fuel.

Corporate and Residential Tax Credits
Provides personal and corporate tax credits for the purchase and installation of solar and wind energy systems on residential property *and commercial*. Also, Louisiana provides for an ad valorem tax exemption for any equipment attached to an owner-occupied residential building or swimming pool as part of a solar energy system.

ACT 348 of 2009
Authorizes creation of sustainable energy financing districts by local governmental subdivisions and provides for issuance of bonds and property assessment programs for solar and energy efficiency projects. The purpose of the sustainable energy financing district shall be to encourage and provide financing for energy efficiency improvements of commercial or residential buildings and the installation of renewable energy improvements within the district on both commercial or residential property.

ACT 467 of 2009
Expands eligibility for the wind and solar energy system tax credit to taxpayers who purchase and install such systems on residential properties they do not own. Enables leasing of solar and wind power systems to those who want them but cannot finance them.

Renewable Fuel Standards
Within six months following the point at which cumulative monthly production of denatured ethanol, biodiesel or other alternate renewable fuel produced in the state equals or exceeds and annual production volume of at least 50 million gallons (10 million for biodiesel and 20 million for other alternate renewable fuels), two percent of the total gasoline (or diesel or motor fuel) sold by volume in the state must be denatured ethanol (or biodiesel or other alternate renewable fuel) produced from domestically grown feedstock or other biomass materials.

Green Power Purchasing
The Department of Administration shall adopt best energy purchasing practices.

Sales tax exemption for power
Alternative fuels used by industry for power are exempt from all sales tax.

Sales tax exemption for Biodiesel Equipment and Co-generation
All equipment for biodiesel production and industrial co-generation of electricity is exempt from state and local sales taxes.

Engineering Assessments for Small, Rural Communities
Under a one-year grant with the University of Louisiana at Lafayette's College of Engineering, the Department of Natural Resources is providing an engineering assessment that details the potential and preliminary design strategy of three candidate power production options for small, rural communities that include both technical and economic considerations for solar technologies, biogas and thermal conversion of biomass opportunities that will be explored to identify the optimum energy cost savings. The state is undertaking a "Biomass Assessment" through a $93,000 contract with Louisiana State University to collect data on all available biomass organized by parish or plant to be placed on a state map for economic development to be used as a resource.

Verenium
Verenium's 1.4 million gallon per year (MGY) cellulosic ethanol plant in Jennings, Louisiana is the Nation's first true demonstration-scale plant capable of producing ethanol from non-food cellulosic biomass sources.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Southeast Regional Carbon Sequestration Partnership (SECARB)
Louisiana is a member of the Southeast Regional Carbon Sequestration Partnership (SECARB) being coordinated by the Southern States Energy Board. Its goal is to develop the necessary framework and infrastructure, conduct field tests of carbon sequestration technologies and evaluate options and potential opportunities for carbon sequestration in the Southeast.

Denbury Resources
Denbury Resources has extensive CO_2 pipeline holdings in Louisiana. The NEJD 183-mile CO_2 pipeline runs from Jackson Dome, Mississippi to near Donaldsonville, Louisiana. Denbury's pipeline network

enables them to transport captured CO_2 to enhanced oil recovery fields in Texas, Mississippi, and Louisiana. The company plans to replace their natural CO_2 source with CO_2 captured from combustion gases.

Natural Gas and Liquefied Natural Gas

(Includes new sources of supply, incentives)

Haynesville Shale – Unconventional Natural Gas Play

The Haynesville Shale is a rock formation containing oil and gas lying approximately 10,500 – 13,000 feet sub-surface in northwest Louisiana and east Texas. Chesapeake Energy has estimated 245 trillion cubic feet (tcf) of natural gas, which would make it the largest onshore natural gas find in the United States and the fourth largest in the world.

Liquefied Natural Gas Terminals

Approved by FERC – Under Construction:

Hackberry, LA: 1.8 Bcfd (Cameron LNG – Sempra Energy)

Sabine, LA: 1.4 Bcfd (Sabine Pass Cheniere LNG – Expansion of existing facility)

Approved by FERC – Not Under Construction:

Cameron, LA: 3.3 Bcfd (Creole Trail LNG – Cheniere LNG)

Hackberry, LA: 0.85 Bcfd (Cameron LNG – Sempra Energy – Expansion of existing facility)

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Net Metering Provisions

A statewide 25 kW maximum allowed for residential, 300 kW maximum for commercial and agricultural; all utilities must participate for renewable energy only. Credits roll over to the next billing cycle if supply exceeds demand for the current cycle.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Deregulation of Compressed Natural Gas (CNG) as a Motor Fuel

Deregulation of CNG and may be sold to consumer as motor fuel and for related purposes, thus reducing dependence on foreign oil as a fuel source.

Alternative Fuel Vehicle Tax Reduction

The state provides a tax reduction on alternative fuel vehicles to promote purchase of these vehicles.

Low-Speed Vehicle Support
Low-speed vehicles are permitted to use roads with speed limits of 35mph or less. This encourages the use of low or no emissions vehicles such as bicycles, mopeds, etc. in place of conventional vehicles.

Alternative Fuel Vehicle and Fueling Infrastructure Tax Credit
The state provides a tax credit for purchase of alternative fuel vehicle fueling infrastructure to promote the use of these fuels by consumers.

Vehicle Conversion Income Tax Credit
Offers an income tax credit worth 20 percent of the cost of converting a vehicle to operate on an alternative fuel, 20 percent of the incremental cost of purchasing an Original Equipment Manufacturer alternative fuel vehicle or hybrid electric vehicle, and 20 percent of the cost of constructing an alternative fuel refueling station. It also provides for a sales and use tax exemption for qualifying biodiesel equipment and manufacturing property.

ACT 469 of 2009
Increases tax credit and makes it refundable for the cost of qualified clean-burning motor vehicle fuel property to 50 percent of the added cost of alternative fuel equipment on vehicle. Limited to a maximum of $3000 if exact cost cannot be determined. Increases to 50 percent and makes refundable cost of installing filling equipment without limit. (Credit was 20% for both and non-refundable.)

ACT 217 of 2009
Provides that the Department of Agriculture & Forestry shall study and monitor biodiesel production and encourage restaurants to provide collection and use of waste fats, oils and grease in the manufacturing of biodiesel fuels.

Average Fuel Economy Goals
The Department of Administration shall develop average fuel economy goals for the state automobile fleet. Motor vehicles purchased for use by any state agency are required to be capable of and equipped for using an alternative fuel which results in lower emissions of oxides, nitrogen, VOCs, CO, particulates, or any combination thereof, and which meet federal Clean Air Act Standards.

Green Jobs
(Includes training, incentives)

ACT 520
A transferable and refundable tax credit from 10-25 percent of property and 10 percent of wages may be awarded to a project that creates “green jobs.” Limited to a maximum of five million dollars per year for all projects.

Innovative Legislation

HCR 93 of 2009
Establishes the Louisiana Climate Change Policy Commission for evaluating the policy considerations, goals, or objectives relevant to the implementation of a comprehensive policy for the state for climate change.

Duties of the commission shall include:

(1) Evaluating the policy considerations, goals or objectives
(2) Provide a public forum for assessment of programs and projects
(3) Report of findings with any recommendations for legislation prior to the 2010 Regular Session of the Legislature of Louisiana.

Carbon Dioxide Storage
Legislation passed in 2008 allows for the storage of carbon dioxide in depleted oil and gas reservoirs. Legislation passed in the 2009 session provides for a comprehensive carbon dioxide sequestration act.

ACT 450 of 2009
Grants a state and local sales and use tax exclusion for anthropogenically produced carbon dioxide used in a "qualified tertiary recovery project" which has a severance tax exemption until the project reaches "payout." After "payout" the severance tax is reduced by one-half.

Other Activities

"Green Government" - January 30, 2008
In 2008, Governor Jindal issued an executive order to make state government more environmentally friendly. The Division of Administration, in consultation with state agencies, is working to set energy efficiency goals for state facilities, office buildings or complexes. Each executive branch department is setting a program to reduce solid waste, a recycling program, and purchasing practices related to energy conservation. Additionally adoption of fuel economy goals for the state automobile fleet will be set and met by 2010. Each state agency will assign a lead to work in the development of the sustainability and energy efficiency goals, the budget management review, the purchasing of alternative and renewable energy, and the implementation of sustainable building guidelines. The Division of Administration serves as the hub for the efforts of state government.

Louisiana Clean Cities
Sponsored by the U.S. Department of Energy's (DOE) Vehicle Technologies Program (VTP), Louisiana Clean Cities is a program between DNR's State Energy Office and local government to reduce the Nation's dependence on foreign petroleum and improve local air quality. Louisiana has three Clean Cities Coalitions: Greater Baton Rouge Clean Cities Coalition, Southeast Louisiana Clean Fuel Partnership and Shreveport Clean Cities Coalition. Accomplishments include the purchase of six compressed natural gas (CNG) trolleys for Baton Rouge, new CNG fueling facility at the Baton Rouge airport, purchase of natural gas vehicles for the City of Baton Rouge, hybrid electric buses for Shreveport.

Industry Reports/Louisiana Utility Programs
According to utility Form 861 filings, the Louisiana utility programs spent $7,000 in 2006 on energy efficiency and conservation programs. Overall, these past and continuing energy efficiency investments have reduced Louisiana 2006 electricity generation by 7,221 MWh or by 0.01 percent. These energy conservation efforts have reduced Louisiana utility CO_2 emissions by 3,610-7,943 TPY. A listing and detailed description of these programs can be found at dsireusa.org.

State Contact Information

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MARYLAND

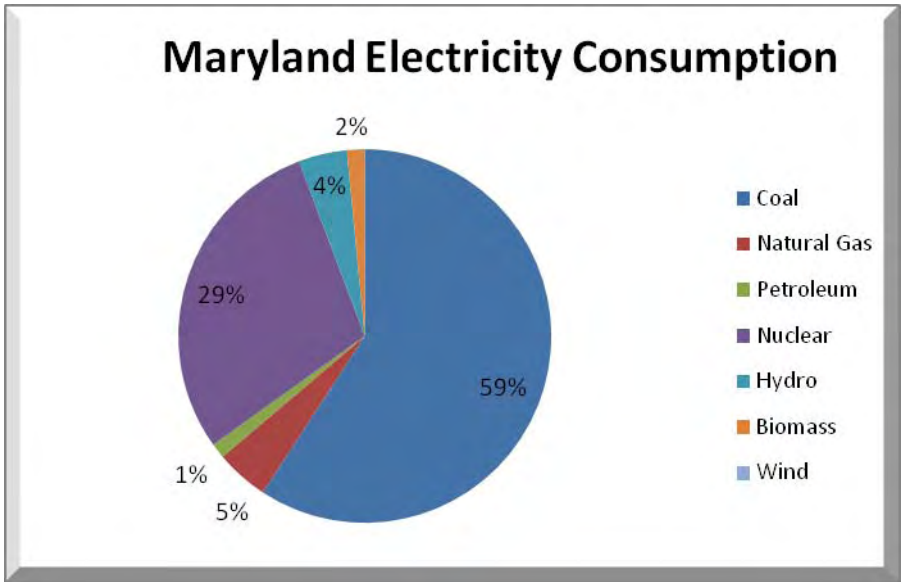
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Maryland's coal-fired power plants typically supply more than one-half of the electricity generation within the state. Nuclear power supplies close to 30 percent of the electricity generation mix. The state's hydroelectricity generates about four percent of the electricity in the state. Maryland also has enormous wind potential in the Chesapeake Bay, Atlantic Ocean, and Appalachian Mountains.

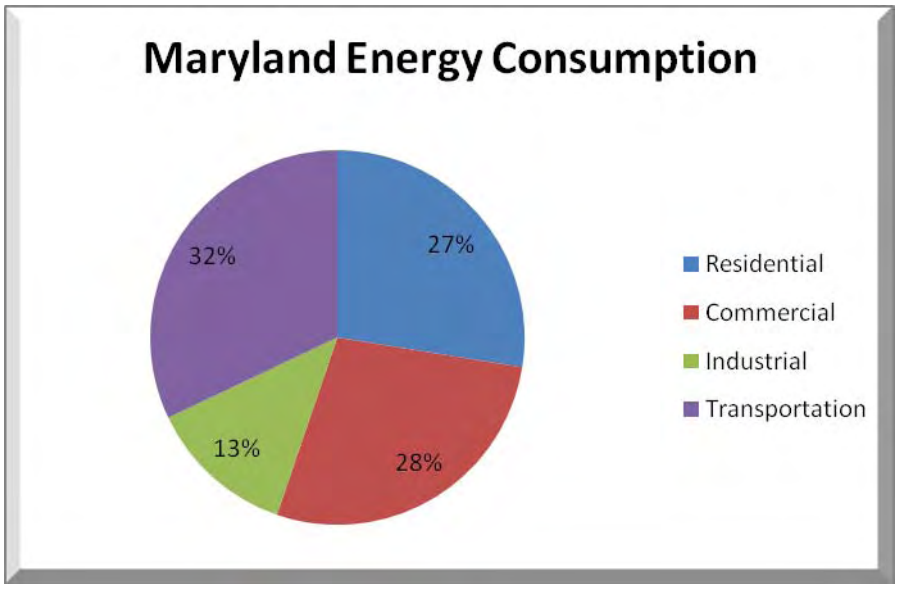
Maryland's residential and commercial sectors account for about 55 percent in energy consumption. Petroleum and coal are the most consumed energy sources. Hydro and biomass both account for approximately four percent each as energy sources consumed in the state. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in Maryland.

Electricity Consumption (by source): Maryland's major electricity generation source is coal at 59 percent. This is followed by nuclear generation at 29 percent. Natural gas, hydro, biomass, and petroleum each represent a five percent or less mix of the state's electric energy use.



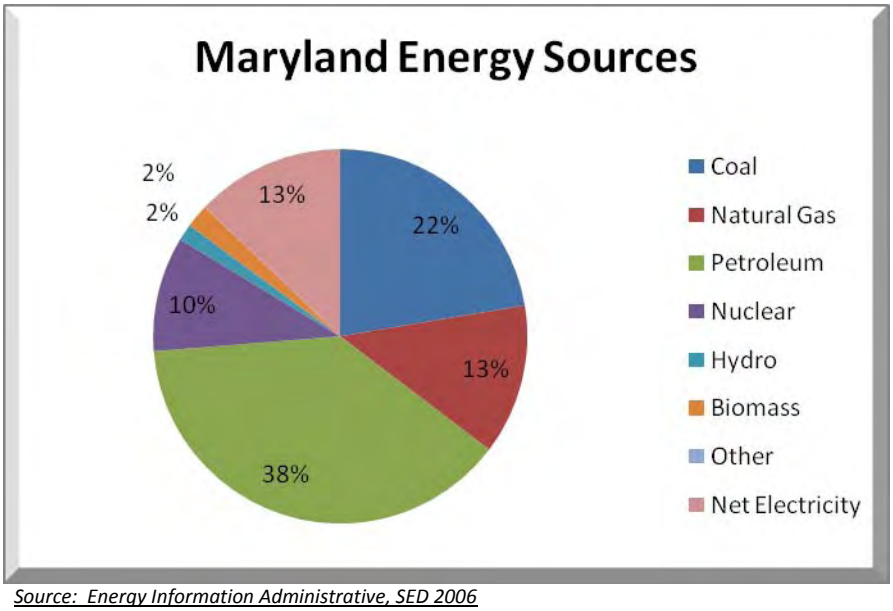
Source: Energy Information Administrative, SED 2006

Energy Consumption (by sector): Maryland's energy consumption is split at around 30 percent between transportation, commercial, and residential use. The industrial sector represents only 12 percent of the state's energy use.



Source: Energy Information Administrative, SED 2006

Energy Consumption (by source): Petroleum represents the leading source of energy in Maryland, contributing to 39 percent of the state's energy use. This is followed by under a quarter of the state's energy use from coal, and around a tenth of the state's energy coming each from natural gas, net electricity, and nuclear.



Source: Energy Information Administrative, SED 2006

STATE INITIATIVES

Energy Conservation and Energy Efficiency

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiative; buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Strategic Energy Investment Fund (SEIF)

Receives proceeds from the Regional Greenhouse Gas Initiative (RGGI) and deposits these funds into programs for energy efficiency, conservation, demand response, low-income energy assistance, clean energy, as well as direct rate payer relief. Below is a list of energy efficiency programs funded by SEIF.

- Home Performance with ENERGY STAR
  Offering home audits, individual incentives and events conducted to encourage people to make their homes more energy-efficient.
- Assisted Home Performance
  Program run in cooperation with the Department of Housing and Community Development (DHCD) to serve low-to-moderate income families by providing approximately $5,000 worth of energy efficiency upgrades.
- Community Grants
  Provides grants to local governments and non-profits to implement energy efficiency plans and programs to serve low-to-moderate income communities in Maryland.
- Jane E. Lawton Conservation Loan Program
  Program provides below market revolving loan packages to encourage investment in energy efficiency and renewable energy by businesses, local governments and non-profits.
- State Agency Loan Program
  Provides loans for energy efficiency improvements in state-owned facilities.

EmPOWER Maryland

Directs the state of Maryland to reduce its energy consumption by 15 percent by the year 2015.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Renewable Portfolio Standard

Maryland's Renewable Portfolio Standard was accelerated last year requiring the state to meet a goal of 20 percent of electricity generated from renewable sources by 2022.

Clean Energy Schools Program

Installing one demonstration clean energy project in every school district in Maryland.

Bio Heating Tax credit

State income tax credit of up to $500 for the purchase of biodiesel used for space heating.

Clean Energy Production Tax Credit
Production tax credit equal to $0.0085 per kilowatt-hour for electricity generated from certified clean energy sources.

Clean Horizon RFP
Request for proposal sent out with the intent of the state to reach a Power Purchasing Agreement with regional and local clean energy providers.

Net Metering
For net excess generation produced from wind, solar, and biomass, a credit can be claimed that is carried over at the utility's retail rate to the customer's (generation owner's) next bill for 12 months. To be eligible, generation system needs to be two megawatts or less.

SEIF Programs
Solar, geothermal, and wind grant programs
Grants are awarded to residents and businesses who install solar photovoltaic, solar water heating, geothermal, or small-wind energy systems.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

PSC Working Group Established

- Chaired by PSC Staff, is currently reviewing distributed generation issues to gain full reliability and economic benefit.
- Approach includes, informational campaign, economic incentives, revised back-up rate structure.
- Interconnection requirements were reviewed and standardized in 2006 and not a current issue.

Interconnection Standards
Maryland's small generator interconnection rules delineate four distinct tiers of interconnection, and the smallest systems are not subject to fees to apply for interconnection. The rules cover interconnection for systems up to 10MW in size, and specifically allow for the interconnection of Combined Heat and Power (CHP). Systems must adhere to the standards promulgated in IEEE 1547.

Renewable Incentives Increased

- Recent legislation increased incentives for solar to help develop 200-300 new resources.
- Limited aggregation services to take advantage of demand response programs.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

Casselman Basin Project

- Aware of Western Maryland Marcellus Shale formations and potential for gas supply.
- No specific projects or incentives for new sources at this time.

Cove Point Upgrades

- Upgrade of existing pier for docking larger vessels with cargoes of up to 267,000 cubic meters LNG.
- Dredging of 150,000 cubic yards of sediment around pier for water depth of 45 feet.
- FERC approved, US. Appeals Court overturned FERC approval citing inability of WGL to repair leaking system February 10, 2009.

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

Potomac-Appalachian Highline Project

- Approximately 185 mile 765KV transmission facility originating in southwest West Virginia and terminating at Kemptown, MD.
- Projected CPCN application first quarter 2009 with in-service date of June 2013.

Mid-Atlantic Pathway Project

- 230 mile, 500 KV HVDC & HVAC transmission line running from Possum Pt. Substation in Virginia, to Chalk Point, to Calvert Cliffs, across the Chesapeake Bay to Vienna MD, on to Indian River Substation and ending at Salem Substation in New Jersey.
- PHI Company working on preliminary siting efforts and anticipate a CPCN application later 2009.

AES Sparrows Point Gas Terminal & Mid-Atlantic Express

- 88 mile line from Sparrows Point terminal to Eagle, PA tying into Columbia Gas system.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

PSC Actions

- Decoupling approved in recent Maryland cases.
- Net metering for up to 2 Megawatts, 1500 MW total cap currently in place.
- No recent actions on rate structures.
- On-going review of smart metering programs with approved pilots.
- On-going 2011/2012 energy shortfall analysis.
- On-going SOS proceedings to determine potential for portfolio approach.
- Recent approval for load control, energy efficiency and conservation programs.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Transportation Grant Program

Program is designed to aid in the development of a cleaner and more efficient transportation system in Maryland which includes alternative fuels, electric transportation, and consumer behavior and modification.

Mass Transit and Car Pooling

(includes increased funding; new and expanded systems; incentives)

Commuter Choice Maryland
Commuter Choice Maryland is an incentive program that encourages Maryland employees to choose transit or vanpools instead of driving to work. http://www.commuterchoicemaryland.com/

Park-and-Ride
Allows residents to park and use public transportation which is more energy efficient.

Green Jobs

(includes training; incentives)

Maryland Greener Jobs Initiative
Maryland has set a goal of creating at least 100,000 green jobs by 2015. The state is working, along with partners in organized labor, and in the private, academic, and non-profit sectors to implement twenty action items which are designed to create new jobs, advance eco-friendly technologies, and provide Marylanders with the skills they need to participate and maximize the benefits of a green economy.

Clean Energy Center
Maryland has created a Clean Energy Center that is charged with the mission of fostering the creation of new green energy jobs, and transforming our energy economy by promoting innovation, supporting entrepreneurship, and moving forward toward the creation and adoption of more consumer-based products and services that will promote clean and renewable energy in Maryland.

Other Activities

Climate Change Commission Executive Order [EO 01.01.2007.07]
Governor O'Malley appointed a Climate Change Commission and charged it with developing an action plan to address the causes and impacts of climate change, with firm benchmarks and timetables for implementation. Presumptive greenhouse gas reduction targets were set at: 1990 levels by 2020 and 80 percent of 2006 levels by 2050. The work of the Commission was largely performed by the following working groups: the Adaptation & Response Working Group, the Greenhouse Gas & Carbon Mitigation Working Group, and the Scientific and Technical Working Group. The Commission completed a comprehensive Climate Action Plan that was posted on the website in July 2008, and was sent to the Governor and General Assembly.

The plan contains cutting edge scientific analysis of the impacts of climate change in Maryland, recommendations on how Maryland can adapt to climate change, including sea level rise, and 42 recommended measures to mitigate Maryland's greenhouse gas emissions. The Commission recommended aggressive GHG reduction goals for the Climate Action Plan including a 25-50 percent reduction in statewide GHG emissions by 2020.

The Greenhouse Gas Emission Reduction Act of 2009
The 2009 Maryland General Assembly enacted the Greenhouse Gas Emission Reduction Act of 2009, which requires a 25 percent reduction in statewide GHG emissions from 2006 levels by 2025. The

Maryland

legislation directs the Department of Environment, working in consultation with other state agencies, to develop and implement a plan to achieve the required reduction.

Regional Greenhouse Gas Initiative (RGGI)
Maryland is a participant in RGGI, a cooperative regional effort of 10 New England and Mid-Atlantic states, which has established a cap-and-trade program to reduce CO_2 emissions from power plants in the region. The program commenced in January of 2009 and is the first of its kind in the Nation. The cap on emissions is set with the goal of first stabilizing Maryland emissions at 2009 levels of 37.5 million tons and reducing regional emissions 10 percent by 2018. Four successful allowance auctions have been held since September of 2008, which have netted approximately $72 million in revenue for the state of Maryland.

Clean Cars Program
Maryland is among a growing number of states that have adopted the California motor vehicle standards, which establish GHG emission reduction requirements for motor vehicles commencing with model year 2011 vehicles.

Strategic Energy Investment Fund
Funds raise from RGGI that were not directed towards rate payer relief and low-income energy assistance were deposited into the Strategic Energy Investment Fund. This fund, administered by the Maryland Energy Administration offers a wide range of incentives and programs aimed at directly helping Maryland consumers, businesses and communities to help decrease energy bills and increase the supply of clean, renewable energy, as well as help reduce the state's carbon footprint and bolstering new green collar jobs in Maryland.

State Contact Information

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Fax: 410.974.2250
www.energy.state.md.us

MISSISSIPPI

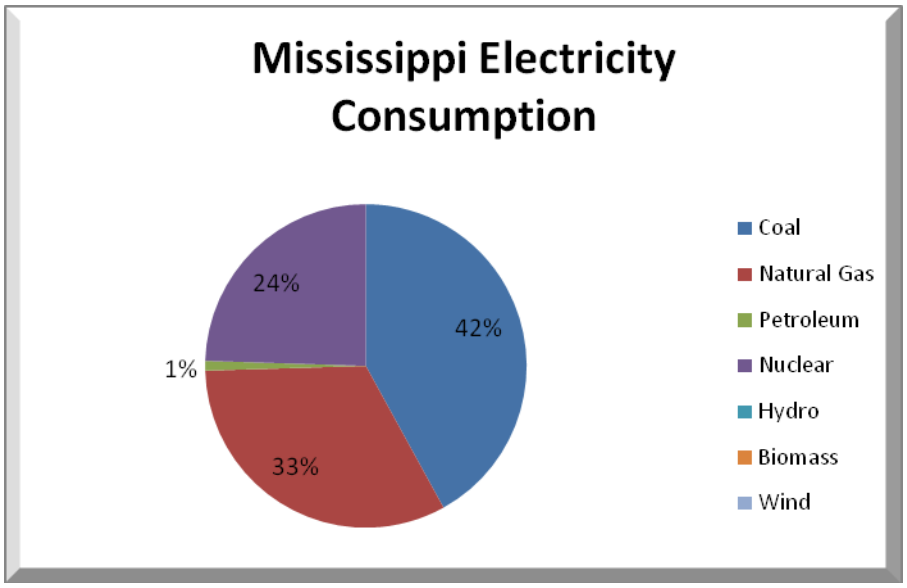
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Although not as energy rich as Louisiana, Mississippi has substantial energy resources, with oil and gas fields found both onshore and offshore in the southern half of the state and along the Gulf Coast. While a small amount of crude oil is produced in Mississippi, the state's three oil refineries account for more than two percent of total U.S. refining capacity. Similarly, Mississippi produces a small amount of natural gas, but has one of the largest natural gas processing plants in the U.S. which serves the growing offshore supplies brought in from federally administered wells on the Outer Continental Shelf (OCS).

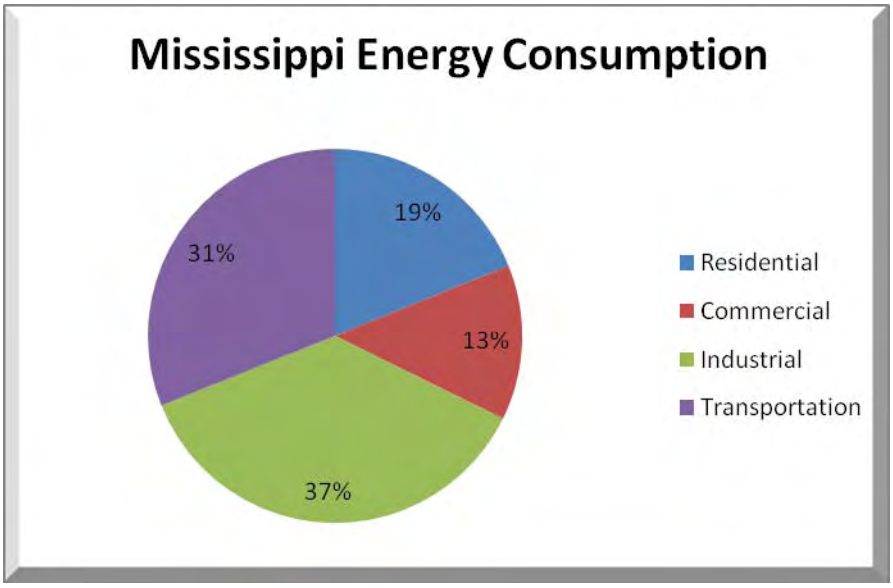
Manufacturing is Mississippi's largest industry, and along with the transportation sector, accounts for nearly 70 percent of the state's energy consumption In-state electricity generation relies primarily on coal, natural gas, and nuclear, but the state imports electricity from neighboring states to meet energy demand. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in Mississippi.

Electricity Consumption (by source): The primary source for electricity consumption in Mississippi is coal power plants, representing 42 percent of the state's electricity mix. A third of the state's electrical energy coming from natural gas, and a quarter of the state's electrical energy derived from nuclear power. At a single percent, a very tiny portion of the state's electrical generation comes from petroleum.



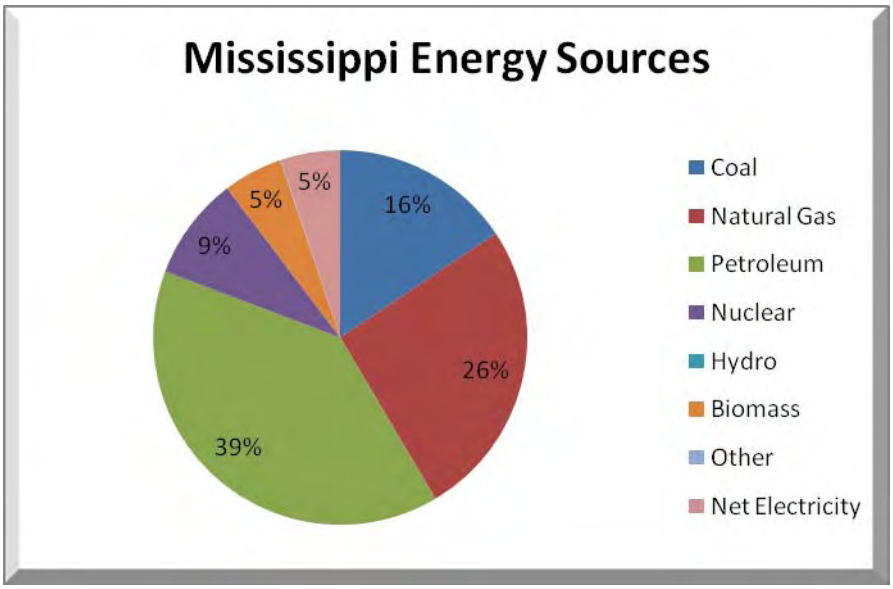
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): The industrial and transportation sectors each represent approximately a third of the state's energy use. The remaining third of the state's energy consumption is split between the residential and commercial sectors.



Source: Energy Information Administration, SED 2006

Energy Consumption (by source): Petroleum represents the primary energy source for Mississippi, representing nearly 40 percent of the state's energy sources. A quarter of the state's energy is derived from natural gas and one-eighth of the state's energy comes from coal. The remaining energy sources are nuclear and biomass, which each represent under 10 percent of the state's energy.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Energy Investment Loan Program

This program provides loans to individuals, partnerships or corporations for capital improvements in the design and development of innovative energy conservation processes. Funding for the program comes from the oil overcharge restitution funds from the U.S. Department of Energy.

Energy Performance Contracting Program

Available to universities, public hospitals, public non-profits, state agencies, and local government authorizations. Entity works with a private Energy Service Company (ESCO) to identify and evaluate energy saving opportunities, then recommends and installs a package of improvements paid for by the energy savings over a period of time (up to a 15-year length). The program allows energy dollars saved to be diverted into other parts of annual budgets. The improvements increase property value and enhance a building's marketability.

Energy Efficiency Lease Program

Provides public entities access to prearranged tax-exempt lease purchase financing. Reduces high origination fees associated with individual project financing. Streamlines lengthy funding processes and meets all federal and state laws. The program provides access to a team of technical, legal and financial professionals.

Industries of the Future

Provides technical assistance and energy audits to the industrial sector in the development of an energy management plan to reduce energy consumption. The MDA Energy Division partners with the Department of Energy Industrial Technology Program to promote Save Energy Now and Best Practices to the industrial sector of the state.

Public Service Commission

2008 proceeding to develop, publicize and keep current an analysis of the five-year long-range needs for expansion of facilities for the generation of electricity in Mississippi (Docket No. 2008-AD-158).

Building Energy Codes

Building Code Council was created in 2006; State agencies to construct and retrofit buildings according to LEED to reduce energy consumption by 30 percent above ASHRAE 60.1-2001; Five counties on the Mississippi Gulf Coast were legislated to enforce wind and flood mitigation requirements of certain nationally recognized codes and standards.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Mississippi Development Energy Division – State Energy Management Plan (SEMP)

The Energy Division of the Mississippi Development Authority promotes the efficient, environmentally sustainable, and economical use of energy in all sectors of the state's economy. The State Energy Management Law of 1981, amended in the 1998 Regular Session of the legislature, provides for the development and implementation of a state energy management plan pertaining to all state-owned or state-leased buildings and facilities and public school district-owned buildings and facilities in a manner which will minimize energy consumption and ensure buildings and facilities are operated with maximum efficiency of energy use. The mission of the State Energy Management Program (SEMP) is to reduce the cost of Mississippi government by helping state agencies, institutions and public school districts reduce energy use in all state-owned buildings/facilities or state-leased buildings/facilities, manage utility cost and promote renewable energy.

Mississippi Technology Alliance – MEP.ms

The Manufacturing Extension Partnership (MEP) program introduced the "Practical Energy Assessment" tool for manufacturers to identify energy consumption and efficiency patterns via Value Energy Stream Mapping (VeSM). This assessment is based on lean manufacturing principles.

Mississippi State University – Industrial Assessment Center

Funded in part by the U.S. Department of Energy, this center uses faculty, staff, and students within the Engineering Department at MSU to conduct energy audits for manufacturers and small businesses. Reports are generated by students for whom it serves as a valuable training tool.

Residential Energy Efficiency

Information and training programs on International Energy Code, energy efficiency and green building are available for ENERGY STAR Homes, RESNET, NAHB Green Building Program, LEED-H, U.S. Department of Housing & Urban Development and programs of the Mississippi Home Corporation.

Weatherization Assistance Program and Low-Income Energy Assistance Program (LIEAP)

Weatherization provides costs of insulating low-income (and 200 percent income under Stimulus guidelines) residences and training and technical assistance for 18 Community Action Agencies that operate the Weatherization or LIEAP program for 82 counties. The LIEAP provides utility bill payments for low income residents and purchases of energy efficient equipment and items for the Weatherization program (HVAC, water heaters, appliances.)

Energy Efficient Procurement Practices

Conduct workshops, seminars and/or conferences on the Energy Resource Directory with the Procurement Officers annually for state agencies and institutions. Provide technical assistance upon request to the Energy Resource Directory.

Southeast Rebuild Collaborative

The state energy offices of Alabama, Florida, Georgia, Mississippi and South Carolina have jointly

created SRC. The goal of this collaborative is to recruit and motivate decision makers across member states to cultivate projects and leverage investments that result in significant, cost-effective energy savings and improved environmental performance for building owners. By promoting energy efficiency to school districts, state and local governments and colleges and universities in the member states, SRC aims to motivate institutions to save energy and reduce the emissions of greenhouse gases.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Mississippi Technology Alliance - Strategic Biomass Initiative

The purpose of the Strategic Biomass Initiative is to strengthen targeted biomass research and development among Mississippi universities and the private sector to break down the hurdles to commercializing renewable energy resources. Biomass involves converting biological materials such as livestock and food processing waste into energy. Biomass research and commercialization may someday reduce our Nation's dependence on foreign oil while creating value-added opportunities for Mississippi farmers. The initiative has provided funding for applied R&D and commercialization projects. Participating companies and public sector organizations including universities are required to share the cost of the project. Major funding for this initiative has been received from the U.S.DOE. SBI works with several local, regional and national organizations such as SSEB, SAFER, Memphis Bioworks Foundation-AgBio and the Association of State Energy Research and Technology Transfer Institutions (ASERTTI) to further these goals. Additional information is available at http://www.technologyalliance.ms/strategic-biomass-initiative/index.php

Biodiesel Committee

Established by the state legislature in 2006, the Biodiesel Committee studies the need for mandated use of biodiesel and the agricultural and environmental benefits of its use.

Tennessee Valley Authority's Green Power Switch Program

Mississippi participates in the TVA Green Power Switch Program, which provides production-based incentives for solar photovoltaic (PV) and wind projects to residential/small-commercial customers and incentives for PV projects to large commercial customers.

Tennessee Valley Authority's Renewable Energy RFP

TVA recently closed a solicitation for purchasing up to 2,000 megawatts of renewable energy from independent power producers. This is likely to spur new investment and project development in the TVA service territory in Mississippi.

Utility Rebate Program

Several Mississippi utility companies offer rebates for customers choosing to consume renewable energy.

Renewable Energy Projects

There are several ongoing renewable energy projects at various stages of completion or operation in Mississippi. These include anaerobic digesters on swine, dairy and poultry farms, gasification of waste biomass, wood pelletization, commercial scale ethanol and biodiesel production and a landfill gas project. There are approximately 30 active sites using renewable energy of one form or another.

Landfill Methane Outreach Program (LMOP)
This is a part of a national program under the Environmental Protection Agency and is administered in the state by the Mississippi Department of Environmental Quality. According to this survey, there are about 10 candidate landfill sites capable of generating renewable energy.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

Baptist Memorial Hospital and Terra Industries
There are several businesses which have their own distributed generation systems. Notable among them are the Baptist Memorial Hospital in Jackson and Terra Industries nitrogen fertilizer and chemical complex in Yazoo City.

Southeastern Combined Cooling, Heating, and Power Regional Application Center (CHPCenterSE)
The Energy Division formed a partnership with Mississippi State University's Micro-Cooling, Heating, and Power (CHP) Application Center and North Carolina State University's NC+CHP Initiative, to develop and support the formation of the CHPCenterSE. Working with other members of the current Southeastern CHP Initiative, the center hopes to double the 1998 levels of CHP installed capacity by the year 2010. The Center will coordinate and conduct education and outreach activities to stimulate market development as guided by a CHP Center Southeast Roadmap.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Cost Recovery for Base Load Generation
To assist in financing new base load generation, legislation passed in 2008 authorizes the Public Service Commission to approve alternate cost recovery methods for base load generation facilities (at least 300 MW for clean coal generation).

Kemper County Lignite Project
Mississippi Power Company recently announced an approximately 500 megawatt IGCC (integrated gasification combined cycle) lignite coal plant with carbon sequestration capabilities to be located in Kemper County in the eastern part of the state. This project is valued at approximately $2 billion.

Southeast Regional Carbon Sequestration Partnership (SECARB)
SECARB is one of seven regional partnerships funded through U.S. Department of Energy's National Energy Technology Laboratory (NETL) devoted to the development and deployment of viable carbon sequestration technologies. SECARB is a diverse partnership managed through the Southern States Energy Board (SSEB).

SECARB's geologic characterization efforts have shown that numerous thick, regionally extensive, high porosity saline formations with excellent thick shale confining zones exist within the Gulf Coastal Plain and have the potential to hold centuries of carbon dioxide (CO_2) emissions from this region.

SECARB, Phase III program is occurring in part at the Cranfield Oilfield, located near Natchez, Mississippi (the Early Test). The Tuscaloosa, as well as other saline formations in the region, will be considered for a storage demonstration at a Southern Company CO_2 capture test location (the Anthropogenic Test). Mississippi Power Company, Mississippi State University and the University of Mississippi are lead research partners in SECARB.

Oil and Oil Shale

Mississippi produced about 20 million barrels of oil in 2007, which is one of the highest production levels in recent times. Enhanced oil recovery (EOR) techniques utilized by companies such as Denbury Resources played an important role in boosting the state's oil production.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

The State Liquefied Compressed Gas Board

Operated through the state Department of Insurance, the Board enforces laws and regulations regarding the distribution of liquefied compressed gases within the state. The Board also has grant money available for Mississippi-based entities for the purpose of promoting and researching the development of more cost-effective uses of propane. Educational, safety and market development programs may also qualify for this grant money. (Reference Mississippi Code 75-57-119)

Two LNG import terminals proposed near Pascagoula, MS.

Gulf LNG Clean Energy Terminal under construction in Pascagoula, Mississippi. Construction is planned to commence in spring 2011 and be completed, together with the LNG terminal, in the fall of 2011. The Pascagoula facility is what's known as a closed loop that doesn't use seawater.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

Alternate Cost Recovery for Base Load Generation Facilities

To assist in financing new base load generation, legislation passed in 2008 that authorizes the Public Service Commission to approve alternate cost recovery methods for base load generation facilities (at least 800 MW for nuclear generation).

Entergy

Entergy Nuclear is headquartered in Jackson, Mississippi.

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

SmartSynch

A smart metering company headquartered in Jackson, Mississippi, producing advanced meters for residential, commercial and industrial applications to address electrical demand response, load curtailment, real-time outage information and improve power quality.

Mississippi Petroleum Set-Aside Program

Mississippi maintains a current database on the Petroleum Set-Aside Plan to ensure compliance with provision of Section 57-39-17(n) of the Mississippi Code of 1972. This Plan is specifically designed to ensure to the extent practicable that essential services are supplied with fuel in the event of an emergency. The Plan is to provide a mechanism to allocate supplies of refined petroleum products such as propane, middle distillates, motor gasoline and residual fuel oil, in a way that will yield the greatest benefit.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Mississippi State University – Energy Institute

The Energy Institute is comprised of multidisciplinary research groups, including the following:

- Sustainable Energy Research Center (SERC)
- Institute for Clean Energy Technology (ICET)
- Micro Cooling Heating and Power and Biofuels Center

These groups develop new technologies to exploit regional sources of biomass that can be then converted into low-cost transportation fuels and chemicals, working on alternative methods to safely dispose of nuclear waste and examining novel ways to decrease electricity costs through advanced heating and cooling processes.

University of Southern Mississippi

The School of Polymers and High Performance Materials at the University of Southern Mississippi is actively involved in research that will reduce our dependence on foreign oil and provide new possibilities for the generation of energy. A research program sponsored by the Department of Energy that focuses on the materials used in fuel cell applications, both enhancement of the existing materials and creation of new materials. These improved materials provide greater efficiency, stability and lifetime when used to produce electricity from hydrogen. This type of technology is most famous for applications in vehicles (hydrogen powered cars whose by-product is water) but also has applications in other devices such as cell phones and laptop computers. This research hopes to provide more efficient and longer lasting polymer membranes that will help produce an alternative energy generation system for the future.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Public Service Commission

2008 proceeding to develop, publicize and keep current an analysis of the five-year long-range needs for expansion of facilities for the generation of electricity in Mississippi (Docket No. 2008-AD-158).

Legislation 2009

Net metering (study commission formed).

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Fuel Efficient and Alternative Fuel Vehicle Use

The Bureau of Fleet Management is established within the Department of Finance and Administration to coordinate and promote efficiency and economy in the purchase, lease, rental, acquisition, use, maintenance and disposal of vehicles by state agencies. The Bureau will encourage the use of fuel efficient or hybrid vehicles appropriate for the state agency's intended purpose and, when feasible, the use of alternative fuels, including but not limited to, ethanol or biodiesel.

Deregulation of Compressed Natural Gas

The state has deregulated compressed natural gas to make it easier to use this energy source as motor fuel instead of oil.

Natural Gas Fuel Rate Reduction and Vehicle Incentives

Atmos Energy offers incentives for natural gas vehicles on a case-by-case basis and offers special rates for natural gas when used as a vehicle fuel.

Mass Transit and Car Pooling

(includes increased funding; new and expanded systems; incentives)

Statewide Transportation Coalition Committee

Several public transit entities and some private entities have formed a coalition to provide more services and combat rising costs statewide. For example, the EZTAG operated by Choctaw Transit, Meridian Transit Commission and the Transit Unit of the East Mississippi Planning and Development District will move clients around nine counties. Another is Delta Rides combining efforts of several entities in northwest Mississippi throughout the Delta. Along the Gulf Coast, Coast Transit Authority has increased ridership and has had a 20 percent reduction in diesel fuel consumption, and has an Idle-Air program. The City of Meridian has a completed Multi-Modal plan and an Idle-Air program.

Green Technology

(includes manufacturing applications; educational programs to enable green technology development)

Solar Car Racing Teams in Mississippi High Schools

Mississippi is the only state in the Nation, which is home to five high schools (Houston, Choctaw, Newton, Ocean Springs, Biloxi) with solar car racing teams. The Houston team is a seven-time winner of the prestigious and rigorous cross-country Dell-Winston School Solar Car Challenge.

Challenge X Automotive Competition

Mississippi is also home to the 2007 national winner of the Challenge X automotive competition with its diesel-hybrid sports utility vehicle.

The Mississippi Biomass and Renewable Energy Council

Awards an annual scholarship to an undergraduate student for biomass related studies. The scholarship has been sponsored by the Mississippi Technology Alliance – Strategic Biomass Initiative since its inception three years ago.

Southern Bioproducts and Renewable Energy Conference

A student poster contest is held each year in conjunction with the Southern BioProducts and Renewable Energy Conference open to graduate and undergraduate students to display cutting edge energy research. Cash prizes are awarded.

IP Casino, Resort and Spa Biloxi

"Renewable Hospitality: Inviting Travelers and Eco-Responsibility" – a green initiative, along with tips and lessons learned for lodging properties.

City of Meridan, Mississippi: Official Green City

Mayor signed U.S. Conference of Mayors Climate Protection Agreement. The Agreement offers a viable environmental agenda for its citizens.

Green Jobs

(includes training; incentives)

Alternative Energy Project (Momentum Mississippi)

An income tax credit equal to $1,000 annually for each new full-time job for a period of twenty years from the date the credit begins. The credit shall begin on the date selected by the producer; however, the beginning date shall not be more than five years from the date the producer begins manufacturing or producing alternative energy. Once a producer creates 25 new full-time jobs, the producer shall be eligible for the credit. Any unused credits can be carried forward for five years. These credits shall be in lieu of the jobs tax, research and development and headquarters credits.

- an alternative energy project is a business enterprise engaged in manufacturing or producing alternative energy in the state with at least 50 percent of the finished product being derived from resources or products of the states.
- a producer is a manufacturer or producer of alternative energy through an alternative fuels project.
  http://www.medc.ms/momentum%20miss%20exec%20summary%20public.pdf

Mississippi

The Mississippi Energy and Construction Workshop Consortium
A group of a wide array of stakeholders including utilities, energy companies, large and small manufacturers, state agencies and non-profits.

Ground Zero Training
Weatherization Program has a demonstration program planned, Ground Zero, to train construction workers for energy efficient construction in one county. Afterwards one or two crews will be trained for each county.

Innovative Legislation

Mississippi Seed Fund (Mississippi Technology Alliance)
A newly enacted fund to provide early stage capital to startup companies and research groups to encourage technology based companies. Renewable energy companies are eligible for such funding. Administered by the Mississippi Technology Alliance (MTA), the multi-faceted Mississippi Seed Fund will assist small- and medium-sized businesses with high-growth potential with difficult-to-cultivate seed and early stage capital money. The purpose is to provide access to capital for small businesses, particularly ones with relationships with one of the research universities in Mississippi. The $4 million fund focuses on research and development activities through its Research and Development Program, technology-based businesses through its Mississippi New Technology Business Program and rural-based businesses through its Rural Innovation Program. It will also enhance research and development at the university-level, with both providing better jobs and economic development in the state. Of the $4 million, the Research and Development Program Fund will receive $1.2 million; the Mississippi New Technology Business Program will receive $2.16 million; and the Rural Innovation Program will receive $240,000.

Building Codes for the Five Coastal Counties
An Act to require Jackson, Harrison, Hancock, Stone and Pearl River counties, and municipalities located therein, to enforce wind and flood mitigation requirements of certain nationally recognized codes and standards.

Building Codes Council
Provides that counties and municipalities may adopt codes established by the Mississippi Building Codes Council. State agencies to construct and retrofit buildings according to LEED to reduce energy consumption by 30 percent above ASHRAE 60.1-20001.

Capital Improvement Revolving Loan (CAP)
Mississippi Development Authority-Energy Division provides technical assistance in the reviewing CAP Loans to recommend energy efficient measures.

Other Activities

Industry Reports/Mississippi Utility Programs
According to utility Form 861 filings, the Mississippi utility programs spent $297,000 in 2006 on energy efficiency and conservation programs. Overall, these past and continuing energy efficiency investments have reduced Mississippi 2006 electricity generation by 268,872 MWh or by 0.87 percent. These energy

conservation efforts have reduced Mississippi utility CO_2 emissions by 135-295,000 TPY. A listing and detailed description of these programs can be found at dsireusa.org.

State Contact Information

Mississippi Development Authority
P.O. Box 849
510 George Street, Suite 300
Jackson, MS 39205
Phone: 601.359.6600
Fax: 601.359.6642
www.mississippi.org/index.php?id=4

MISSOURI

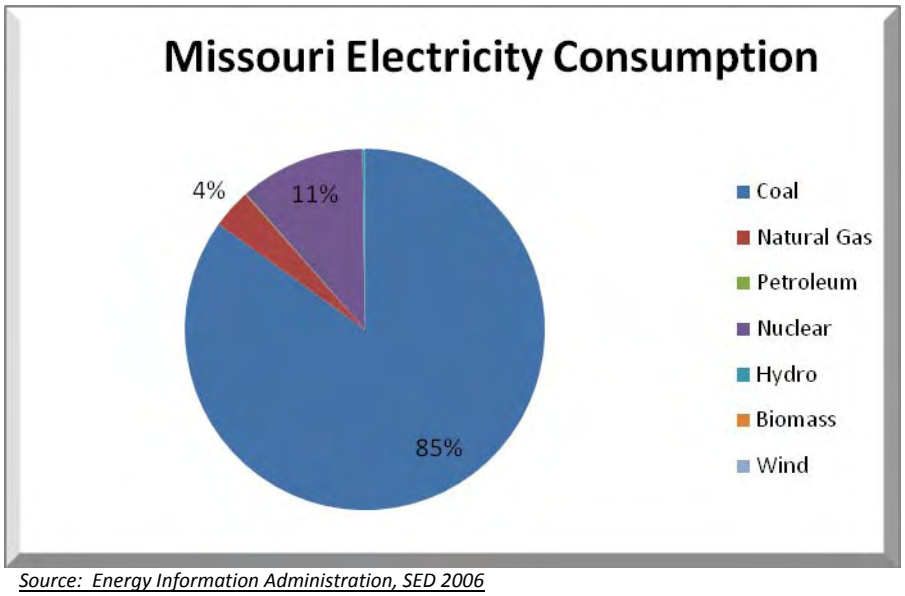
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Coal is the dominant fuel for electricity production in Missouri and typically supplies 85 percent of the electricity market. Nuclear energy represents eleven percent of the electricity generated in the state. Approximately two percent of Missouri's electricity is generated from renewable sources, and the majority of that is from conventional hydroelectric generation.

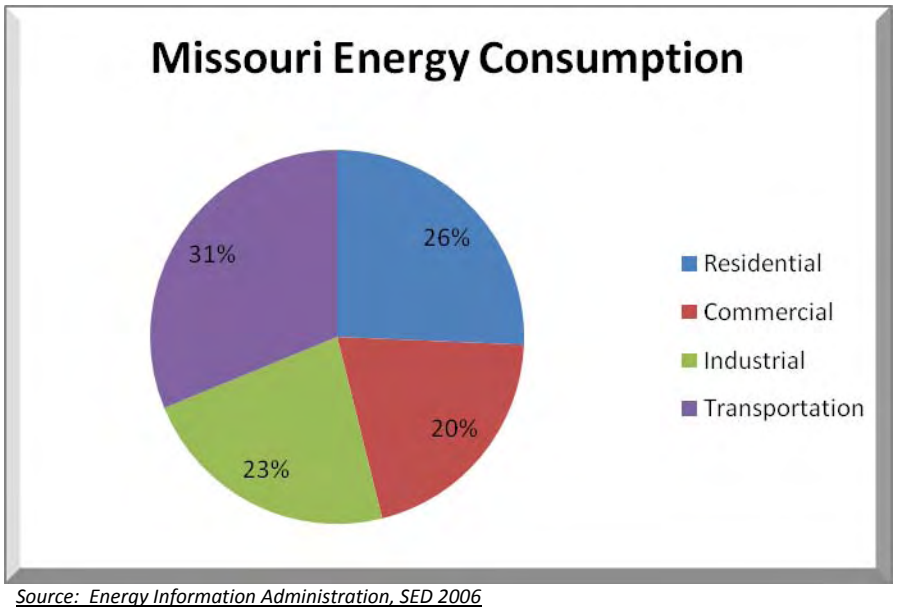
While the transportation sector accounts for the majority of energy consumed at 31 percent, the residential and industrial sectors typically consume about one quarter of the energy in the state. Coal, petroleum and natural gas account for over 90 percent of the energy consumed in Missouri. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in Missouri.

Electricity Consumption (by source): Representing 85 percent of the electricity consumed, Missouri is almost entirely reliant on electricity from coal, with the remaining electricity coming from nuclear sources (11%) and a small fraction coming from natural gas.



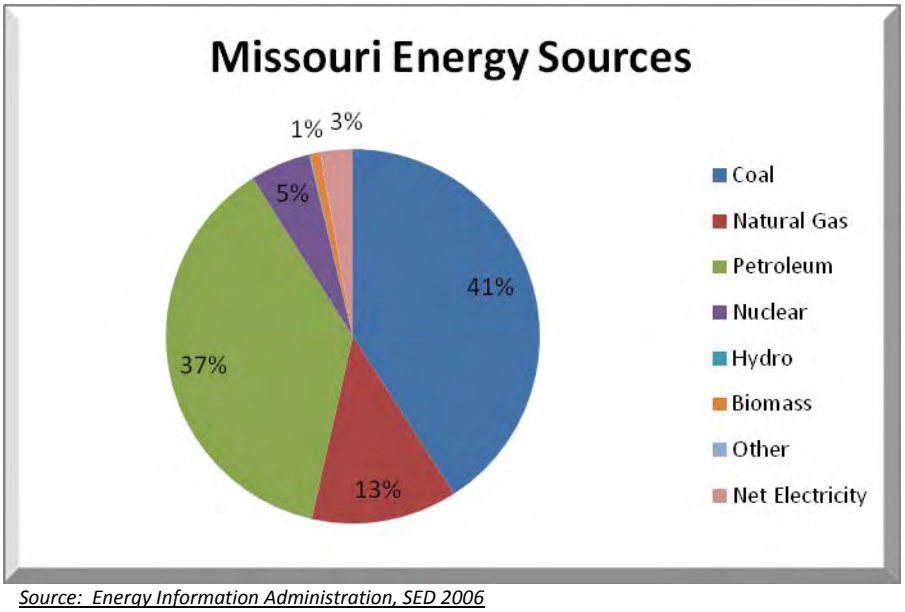
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): While Missouri's energy consumption mix is split in rough quarters between transportation, residential, industrial and commercial, the lead consumer is the transportation sector at 31 percent.



Source: Energy Information Administration, SED 2006

Energy Consumption (by source): The lead energy sources for Missouri are coal and petroleum, each approximately representing 40 percent of the state's energy. Natural gas represents another significant fraction of the state's energy at 13 percent, and nuclear, net electricity and hydro each represent small fractions of the state's energy sources.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Green Lodging Certification Program

Pilot project in cooperation with the Missouri Hotel and Lodging Association to recognize those lodging businesses which are going beyond existing state and federal environmental regulations to ensure that their operation has a small environmental impact on their local communities.

Energy Loan Program

Provides low-interest loans to schools, local governments, colleges and universities for the purpose of financing all or a portion of the costs incurred in implementing an energy conservation project. The loan is repaid with interest and the payments come from the energy-cost savings resulting from the project. Since 1989, the cumulative energy savings resulting from 482 loan-financed energy projects are estimated at more than $117 million.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

The Missouri Energy Center

Housed within the Missouri Department of Natural Resources, the Energy Center provides a website with information on energy saving techniques, government programs and youth curricula for teachers. The Energy Center provides technical assistance to Missouri citizens, businesses, schools and local governments to help improve energy efficiency of buildings and water treatment facilities. In addition, the Missouri Energy Center administers the Weatherization program for low-income households to increase the energy efficiency of their homes.

Clean Air Interstate Rule (CAIR) Energy Efficiency and Renewable Energy (EE/RE) Set-Aside

Provides financial incentives for energy efficiency or renewable generation projects that will improve air quality, stimulate local economic activity, diversify energy production in Missouri and provide greater power system reliability. Sponsors of qualified projects receive annual NOx allowances for up to seven years based on the amount of NOx emissions avoided. The allowances may be used, sold or retired.

Missouri Certified Home Energy Auditors

Senate Bill 118 signed into law in 2008, includes a tax deduction for certified home energy audits and the recommendations of those audits beginning with the 2009 tax year. To qualify for the deduction, the audit must be performed by an energy auditor certified by the Missouri Department of Natural Resources.

Energy Efficiency in State Facilities Act
Governor Jay Nixon, on April 23, 2009, signed an executive order to amplify state government leadership in energy efficiency. The order directs that energy savings of two percent be realized for each of the next 10 years in state-owned or state-operated facilities. State law also requires the Office of Administration to evaluate, based upon life-cycle cost factors and minimum energy efficiency standards, design and construction documents for all new construction or major renovation of any state building when major energy systems are involved. The Center and the Office of Administration must submit an annual joint report to the House committee on Energy and Environment, the Senate committee and Energy and Environment, and the Governor on the identification, planning and implementation of energy efficiency projects in state buildings.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Innovative Renewable Energy Project
A partnership joins a local electric company, energy services provider, waste disposal company and the state to create renewable energy and heat using landfill byproducts. The historic energy saving initiative uses resources that would otherwise be wasted while at the same time producing benefits for the environment, the state and local communities.

Biodiesel and Ethanol Production Incentives
The Qualified Biodiesel Producer Incentive Fund provides monthly grants to biodiesel producers in Missouri. The Qualified Ethanol Producer Incentive Fund provides monthly grants to ethanol producers in Missouri.

Wind Power Plants
The Wind Capital Group operates four wind farms in NW Missouri with a combined capacity of 162.5 MWs. Wind Capital, which claims the turbines will provide generation for 61,400 homes, has signed a contract to sell its power to Associated Electrical Co-operative. The four farms began operation in early 2008.

Renewable Energy Standards
In November 2008, Missouri voters enacted the Clean Energy Initiative, a ballot initiative that enacted a mandatory renewable electricity standard of 15 percent by 2021. The standard applies only to the state's investor-owned utilities and does not place any requirements on municipal utilities or electric cooperatives. Energy efficiency measures are no longer eligible to be counted towards compliance with the standard.

The standard sets the following minimum benchmarks for electric utilities based on their annual electricity sales—two percent from 2011 to 2013 (0.04% solar), five percent from 2014 to 2017 (0.1% solar), 10 percent from 2018 to 2020 (0.2% solar) and 15 percent for 2021 and thereafter (0.3% solar). Eligible renewables include solar PV, solar thermal, wind, small hydropower, biogas from landfills and wastewater treatment plants, biomass and fuel cells using hydrogen from renewable resources. Eligible hydropower facilities must have a nameplate capacity of 10 megawatts (MW) or less and not require new water diversions or impoundments. Co-firing is permitted, but only the percentage of electricity generated by an eligible renewable resource can be counted towards a utility's renewable energy

obligation. Compliance with the objective can be achieved through the procurement of renewable energy or renewable energy credits (RECs). RECs will have a lifetime of 3 years.

Green Power Purchase Programs
A number of Missouri utilities offer voluntary Green Power purchase programs. The AmerenUE/3 Degrees Pure Power program offers consumers the opportunity to purchase clean energy at a premium of 1.5c/kWh. Seventy five percent of the generated power comes from wind, with the other 25 percent comprised by other renewable sources. Seventeen Missouri co-ops offer consumers the opportunity to purchase wind and biomass generated power at a premium of 2-3.5c/kWh. The Wind Current program offered by the City of Springfield provides wind power at a premium of 2-3.5c/kWh.

Wood Energy Tax Credit
Provides a tax credit to a Missouri wood energy producer of five dollars per ton of processed material. The credit may be claimed for a period of five years and is to be a credit against the tax. The Energy Center evaluates the tax credit applications and certifies to the Department of Revenue each applicant that qualifies as a wood energy-producing facility.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Plains CO_2 Reduction Partnership (PCOR)
Missouri is a member of the Plains CO_2 Reduction Partnership (PCOR). Its goal is to develop the necessary framework and infrastructure, conduct field tests of carbon sequestration technologies and evaluate options and potential opportunities for carbon sequestration in the Plain states. According to the *2008 Carbon Sequestration Atlas of the United States and Canada*, PCOR studies have found that Missouri has between 152-607 million metric tons of CO_2 storage potential in its deep saline formations.

Consortium for Clean Coal Utilization
Created in December 2008 under the umbrella of Washington University- St. Louis' International Center for Advanced Renewable Energy and Sustainability (I-CARES). Companies that have made financial commitments to the Consortium include Arch Coal, Peabody Energy and Ameren. The Consortium for Clean Coal Utilization is dedicated to addressing the scientific and technological challenges of ensuring that coal can be used in a clean and sustainable manner and to be a resource to industry for the advancement of technologies that foster clean utilization of coal by creating an international partnership between universities, industries, foundations, and government organizations. The Consortium will support research associated with science and technology on environmentally benign and sustainable use of coal, both as a source of energy and a chemical feedstock. A broad range of topics will be considered, including: pre-combustion coal processing/drying, gasification, Fischer-Tropsch, oxy-coal, Coal-to-liquid (CTL), Coal-to-gas (CTG), oxygen production, CO_2 capture, CO_2 geo-sequestration, algal systems for CO_2 capture, catalyst conversion, cofiring with biomass, products of value, SOx, NOx, PM 2.5, mercury, multi-pollutant control, efficiency improvement, nanosorbents, policy, global impact, air and water quality.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

Missouri Propane Education and Research Act

Established the Missouri Propane Education and Research Council to recommend regulations for propane producers and marketers and develops and implements programs of research, development, education and marketing and coordinates its activities with industry trade associations to provide efficient delivery of services.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

Ameren- Callaway

Ameren operates the one nuclear unit at the Callaway plant, which has a capacity of 1,211 MW. In July 2008, Ameren submitted its application to the Nuclear Regulatory Commission for permits to add an additional unit at Callaway. If built, the proposed 1,600 MW unit is expected to come online by 2020.

Nuclear Technician Training

Linn Technical State College and the University of Missouri, which are both located in central Missouri have partnered to initiate a program of education and training for technicians in the nuclear power industry. The program includes both technicians currently employed and new candidates for jobs. The program, initiated in the 2007-2008 school year, is in part a response to the aging of the industry's work force.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

University of Missouri at Columbia

In August 2008, the DOE announced that the University of Missouri at Columbia will receive up to $1.9 million for development of boron-substituted, high-surface area carbon materials made from corncobs for use as hydrogen adsorbents. DOE's Hydrogen, Fuel Cell and Infrastructure Technologies program is helping enable the long-term maturation of hydrogen technologies by funding 10 cost-shared hydrogen storage research and development projects which will receive up to $15.3 million over five years, subject to annual appropriations.

ICM Inc. Cellulosic Plant – St. Joseph, Missouri

In January 2008, the DOE announced it would provide up to $30 million in funding for ICM Incorporated to construct a cellulosic plant in St. Joseph, Missouri. The plant was one of four projects that will receive up to $114 million in DOE funding by 2010 in an effort to help make cellulosic ethanol cost-competitive by 2012. The plant will utilize agricultural residues such as corn fiber, corn stover, switchgrass and sorghum and test novel conversion technologies to provide data necessary to bring online full-size, commercial-scale biorefineries. The plant will integrate biochemical and thermochemical processing and demonstrate energy recycling within the same facility.

International Center for Advanced Renewable Energy and Sustainability
Washington University St. Louis created its International Center for Advanced Renewable Energy and Sustainability (I-CARES) in June 2007. The financial commitment to establish I-CARES includes creating six endowed professorships, funding $3 million for seed research and constructing a new 150,875-square-foot building to house the University's Department of Energy, Environmental and Chemical Engineering and I-CARES programs.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Net Metering
Missouri requires all of the state's electric utilities, including municipal utilities and electric cooperatives, to offer net metering to customers with systems up to 100 kilowatts (kW) in capacity. Wind, solar-thermal and photovoltaics, hydroelectric and fuel cells using hydrogen are all eligible as generation sources.

Rate Structures
Legislation passed in 2009 (pending Governor's signature) that allows the Public Service Commission to implement cost recovery methods to encourage further investments in energy efficiency programs, which may include capitalization of investments, rate design modifications, accelerated depreciation and allowing the company to retain a portion of the net benefits for its shareholders.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Increasing Alternative Fuel Use and Production
Legislation passed last year requires that gasoline sold in Missouri be blended with 10 percent ethanol by 2008. Incentive payments have been made to Missouri farm families investing in ethanol cooperatives.

Improving the Efficiency of the State Fleet
The Office of Administration is required by executive order to ensure that at least 70 percent of the new vehicles purchased for the state fleet are flex fuel. The state fleet currently has 36 hybrid-electric vehicles and 1,717 E85 vehicles.

Low Speed Vehicle Access to Roadways
Low speed vehicles may operate on streets with speed limits of 35mph or less to encourage the use of low speed vehicles. This encourages the use of low or no emissions vehicles such as bicycles, mopeds, etc. in place of conventional vehicles.

Alternative Fuels Tax Reduction
The motor fuel tax does not apply to alternative fuel vehicles; instead owners are required to buy an annual decal.

Alternative Fuel Vehicle Emission Inspection Exemption
Vehicles powered by electric or hydrogen power exclusively or by fuels other than gasoline are exempt from emission inspection requirements.

State Fleet Biodiesel Incentive Program
Allows state agencies to the moneys generated by the sale of EPAct credits to purchase biodiesel fuel for use in state vehicles. Moneys deposited into the fund shall be used to pay for the incremental cost of biodiesel fuel with a minimum biodiesel concentration of B-20 for use in state vehicles and for administration of the fund.

Tax Credit for Alternative Fuel Stations
Creates an income tax credit for the costs of constructing a qualified alternative fuel vehicle refueling property.

Green Technology

(includes manufacturing applications; educational programs to enable green technology development)

Tax Incentives for Technology Business Projects
Allows a company that leases or owns facilities that produce electricity derived from qualified renewable energy sources to participate in the business development program as a technology business project if it meets other requirements of the program.

Other Activities

Commonsense Changes Benefit the Environment
Small projects have been implemented within the government such as the reuse of an old water tower that would have otherwise been demolished. A new system to handle prison laundry services reduces phosphates in waterways, uses cold instead of hot water and takes less water to operate overall. Improved permitting compliance and enforcement efforts are also a part of beneficial efforts to improve the environment.

Midwest Governors' Association Energy Security and Climate Stewardship Platform
Missouri supports the general preamble and five regional initiatives (but not all of the segments of the platform.) Efforts to improve environmental efficiency and reduce waste include: implementation of preventative maintenance; investing in improved energy management systems; reassessing state agency energy consumption, all which result in reducing carbon output by 213 million pounds per year, the equivalent of removing 1.2 million cars from Missouri roads or planting 7.5 million trees.

Climate Registry
Missouri participates in the Climate Registry, which aims to develop a common system for entities to report greenhouse gas emissions. The Registry serves as a tool to measure, track, verify and publicly report greenhouse gas emissions consistently and transparently between states. Voluntary, market-based and regulatory greenhouse gas emissions reporting programs are all supported under the Registry.

Industry Reports/Missouri Utility Programs

According to utility Form 861 filings, Missouri utility programs spent $8.95 million in 2006 on energy efficiency and conservation programs. Overall, these past and continuing energy efficiency investments have reduced Missouri 2006 electricity generation by 38,129 MWh or by 0.06 percent. These energy conservation efforts have reduced Missouri utility CO_2 emissions by 19,000-42,000 TPY. A listing and detailed description of these programs can be found at www.dsireusa.org. In recent integrated resource plans, investor owned electric utilities have committed to significant increases in demand-side management program implementation compared to the 2006 EIA data.

State Contact Information

Missouri Energy Center
P.O. Box 176
1101 Riverside Drive
Jefferson City, MO 65102-0176
Phone: 573.751.2254
Fax: 573.751.6860
www.dnr.mo.gov/energy/index.html

NORTH CAROLINA

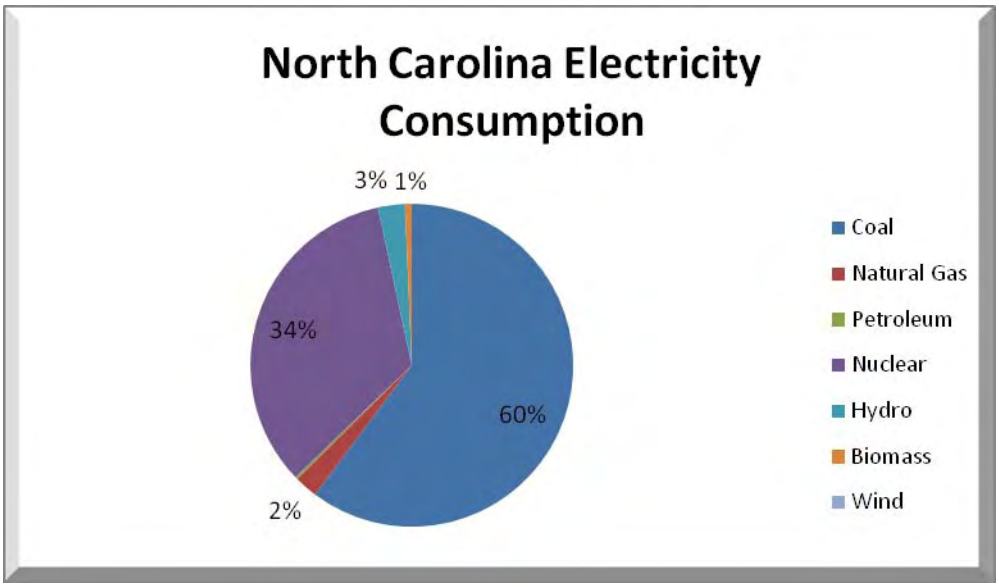
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

North Carolina is one of the leading nuclear power producing states in the country, with three active nuclear power plants. Hydroelectric power plants located along several rivers in central and western North Carolina produce about three percent of electricity in the state. However much of the state's electricity—approximately 60 percent—is derived from coal-fired power plants, fueled by coal imported primarily from West Virginia and Kentucky. The state also recently established a renewable energy portfolio standard to encourage increased electricity production from renewable sources.

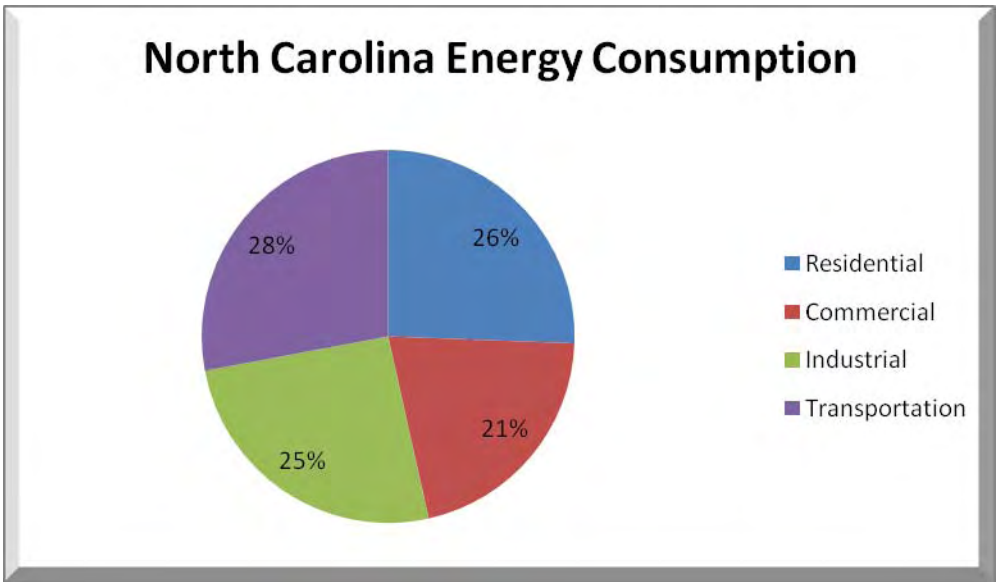
North Carolina's transportation sector leads state energy consumption by a small margin, followed closely by the industrial, commercial and residential sectors. North Carolina is a leader in the energy-intensive chemical manufacturing industry, and this contributes to the state's energy consumption needs. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in North Carolina.

Electricity Consumption (by source): The majority of North Carolina's electric energy is provided by coal, which represents 60 percent of the mix. Another third of the state's electricity comes from nuclear power, and small fractions of the state's electric power come from hydroelectric plants, natural gas and biomass.



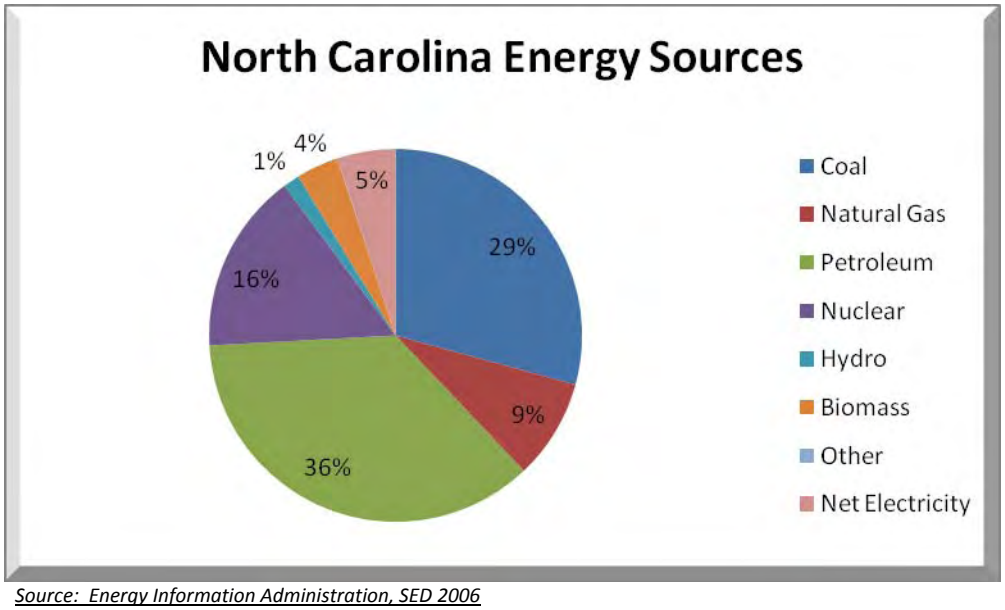
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): While the transportation sector has a slight lead in terms of state energy consumption, North Carolina's energy is consumed roughly in quarters by each of the transportation, industrial, residential and commercial sectors.



Source: Energy Information Administration, SED 2006

Energy Consumption (by source): North Carolina's main energy source is petroleum at 36 percent, followed by 29 percent of the electricity coming from coal power plants. Nuclear represents a 16 percent fraction of the mix, and natural gas, net electricity, biomass and hydroelectric sources represent the remaining fractions.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Change a Light, Change the World

Through this program, North Carolinians can receive free Compact Florescent Bulbs. The program is made possible through a partnership with private groups: BlueRidge electric membership corporation, Dominion, Duke Energy, ElectricCities, Progress Energy, Union Power Cooperative, State Energy Office, NC State University and A&T State University Cooperative Extension.

Utility Savings Initiative

Comprehensive, multi-programs approach to reduce utility expenditures and resource use in public buildings. The sectors served are state agencies, University of North Carolina system institutions and affiliates, community colleges, K-12 public schools and local municipal and county governments.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Center for Energy Research and Technology (CERT)

Housed at North Carolina A&T State University, provides education, training, demonstration and technical assistance on energy and environmental technologies. Programs fall under three main areas: Technical Transfer (Outreach), Demonstration and the Manufactured Housing Research Initiative.

Energy Management Program

Operated in conjunction with the Industrial Extension Service, North Carolina State University conducts industrial energy surveys and workshops to identify opportunities and demonstrate techniques for optimizing energy use in various building systems, promoting energy conservation in industrial, institution, commercial and governmental buildings.

Boiler Efficiency Technical Assistance

Provides instruction to plant personnel on how to solve boiler efficiency problems and promote state-of-the art equipment to maintain optimum boiler efficiency.

North Carolina Combined Heat and Power Center

Seeks to double the installed CHP capacity in the Southeast by 2010 in conjunction with the Southeastern Combined Cooling, Heating and Power Regional Application Center. The Center coordinates and conducts education and outreach activities to stimulate market development as guided by a CHP Center Roadmap.

Energy Efficient Mortgages

Promotes Fannie Mae's energy efficient mortgages program so that prospective homeowners can finance energy efficient systems through the home mortgage.

NC Healthy Built Homes
Program for small to medium size homebuilders that may not have the resources to compete in the emerging field of green building. A comprehensive checklist of green building techniques has been developed by a statewide advisory board.

Public Housing Authorities
Partnership of the State Energy Office and Advanced Energy Corporation to incorporate the SystemVision standards into Public Housing Authorities.

UpGrade and Save
Statewide program that provides incentive grants for manufactured home retailers who sell new ENERGY STAR-labeled manufactured homes or upgrade new home to heat pumps. Also, a limited number of incentives are available to owners of existing homes built in 2003 or later to upgrade their electric furnaces to heat pumps.

Energy Improvement Loan Program
Low-interest loan program up to $500,000 for projects demonstrating energy efficiency, use of renewable energy resources or result in energy cost-savings or reduced energy demand that are located in the state.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Renewable Energy Property Tax Credit
Taxpayers who construct, purchase or lease renewable energy-related property are eligible for a tax credit equal to 35 percent of the cost of the property. A ceiling of $250,000 per installation applies to renewable energy property placed in service for any purpose other than residential.

Renewable Energy and Energy Efficiency Portfolio Standard Established
In 2007, the state established renewable energy portfolio standards requiring electric public utilities to meet 12.5 percent of retail electricity demand through renewable energy or energy efficiency measures by 2021. Municipalities that sell electric power have to meet the standard of 10 percent by 2018.

Soybean Producers Association Biodiesel Distributor Program
New dealers and distributors are eligible for rebate on first 250 of 500 gallons of biodiesel purchased.

Biodiesel Equipment Enhancement Rebate
This program provides new biofuels dealers and distributors a rebate to help cover the cost of any equipment changes necessary to sell soy biodiesel.

Biofuels Center of North Carolina
In 2007, the North Carolina General Assembly created the Biofuels Center of North Carolina to develop a statewide biofuels industry and reduce the state's dependence on imported liquid fuels. Its goal is to produce 10 percent of liquid fuels sold in North Carolina from locally grown and produced biofuels.

North Carolina GreenPower
First statewide green energy program in Nation that is supported by all the state's utilities and administered by Advanced Energy, a nonprofit. The goal of this program is to supplement the state's existing power supply with more green energy. It is driven by citizens and corporate contributions. The North Carolina State Energy Office works with the U.S.EPA Landfill Methane Outreach Program (LMOP), a voluntary assistance and partnership program that promotes the use of landfill gas as a renewable, green energy.

North Carolina Solar Center
Funded in part by the State Energy Office, the NC Solar Center is a research and demonstration center operated by the Industrial Extension Service at North Carolina State University and provides technical support and outreach in solar, wind, alternative fuels, biomass and green buildings technologies. The NC Solar House and the Alternative Fuel Vehicle demonstration facility are operated at the NCSU McKimmon Center to showcase renewable technologies and are open to the public.

North Carolina Anemometer Loan Program
Provides a better understanding of the wind resources in North Carolina and provides information to interested landowners about the viability of producing electricity with residential scale wind technology on their property.

Coastal North Carolina Wind Working Group
Active, collaborative body through which key issues facing wind development in the region are addressed including coastal wind resource development to educate and excite local stakeholders and national developers about the potential for wind energy development on the outer banks, along the coast and in the sounds of eastern North Carolina.

Distributed Generation
(includes incentives; special back-up supply rates; standardized interconnection standards)

Interconnection Standards
The N.C. Utilities Commission (NCUC) adopted comprehensive interconnection standards for distributed generation in June 2008. The standards are similar to FERC's interconnection standards for small generators, and govern interconnection to the distribution systems of the state's three investor-owned utilities: Progress Energy, Duke Energy and Dominion North Carolina Power.

The NCUC standards, like the FERC standards, use a three-tiered approach to simplify the interconnection process:

- Systems up to 10 kilowatts (kW) must follow the 10-kW "inverter process" of simplified interconnection;
- Systems larger than 10 kW and up to two megawatts (MW) must follow the "fast-track process"; and
- Systems greater than 2 MW must follow the "study process."

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Clean Smokestacks Act (CSA)

The Clean Smokestacks Act was passed in 2002. This law required a study of CO_2 emissions from coal-fired utility plants and other stationary sources and prompted actions that lead to the development of a climate action plan for North Carolina.

Southeast Regional Carbon Sequestration Partnership (SECARB)

North Carolina is a member of the Southeast Regional Carbon Sequestration Partnership (SECARB) being managed by the Southern States Energy Board. Its goal is to develop the necessary framework and infrastructure, conduct field tests of carbon sequestration technologies and evaluate options and potential opportunities for carbon sequestration in the Southeast.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

Senate Bill 3

Supports the construction of nuclear plants by establishing a utility's ability to have incurred cost reviewed by the North Carolina Utilities Commission periodically and added to the rate base in a general rate case even if that facility is not yet complete.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Research Triangle Institute (RTI)

In July 2008, DOE announced it will provide up to $2 million in funding for Research Triangle Institute (RTI) to research novel fluorinated polymer membranes with a focus on total process design and integration of the membrane-based CO_2 separation technology into an existing coal-fired power plant. RTI researchers will focus on novel high-performance membrane materials, improved hollow-fiber membrane module design and process development for efficient integration of the CO_2-capture system into an existing coal-fired power plant.

Novel Technologies for Desulfurization of Synthesis Gas

RTI is working on a $25.0 million project (DOE share: $19.4 million) to remove sulfur-containing compounds from coal-derived synthesis gas. These compounds have the potential to upset operating conditions of technologies such as fuel cells and advanced combustion turbines. Several removal processes will be examined and include the use of membranes, regenerable adsorbents and sodium bicarbonate materials. Successful development of these processes will result in significantly reducing the cost of synthesis gas purification.

Novel Substitute Natural Gas/Electricity Co-production Process
RTI will develop a catalytic coal-gasification process that coproduces SNG and electricity, achieves near-zero emissions, and produces high-pressure, sequestration-ready carbon dioxide. The concept centers on a preprocessing step that converts the coal into a mixture of gas-phase carbon products, hydrogen and char particles. The gaseous mixture is then cycled through a catalytic reactor and converted into methane. DOE will contribute $3.0 million to this $3.76 million project.

Technology for Co-Production of Hydrogen and Electricity
RTI will develop a process for coproducing hydrogen and electricity based on the reduction and oxidation of iron oxide catalysts to process coal gasification synthesis gas. The project team will develop a sturdy, iron-based catalyst for producing high-pressure, high-purity hydrogen within a system capable of separating carbon dioxide for sequestration. If successful, the project will reduce the cost of gasification-based co-production while achieving near-zero emissions. DOE is contributing $2.57 million to this $3.22 million project.

Syngas Cleaning Technology
RTI will develop a warm multi-contaminant syngas cleaning system for operation between 300 and 700 degrees Fahrenheit and 1,200 psig. This system will be composed of a bulk contaminant removal stage and a polishing removal stage. Although a number of factors contribute to the overall cost of IGCC technology, the cost of cleaning the syngas to near zero contaminant levels is a major component, accounting for 7 to 15 percent of the overall capital cost. The keys to improving the economics of the syngas cleaning system are reducing these costs and, at the same time, increasing the thermal efficiency of conversion of coal into electricity and other products. DOE is contributing $5.26 million to this $6.66 million project.

FMC Corporation of Charlotte
In December 2008, DOE announced that FMC Corporation of Charlotte has been selected for negotiation of a three-year, up to $6.2 million, DOE share of up to $3.0 million, award for scaling up production of stabilized lithium metal powder for high energy Li-ion battery cathodes. These powders can be used to produce battery cells with reduced losses during the initial cell charging. The FMC project is one of three selected that will focus on improving battery material performance and developing manufacturing processes to increase performance and decrease cost of plug-in hybrid electric vehicles (PHEV) batteries.

Energy Regulatory Practices
(includes decoupling; net metering; rate structures; load control programs)

Net Metering
Requires the state's three investor-owned utilities to make net metering available to customers who produce renewable electricity.

Vehicle Fleet Conservation and Alternative Fuels Programs
(includes infrastructure; anti-idling programs; fleet mileage standards)

Tax Credit for Alternative Fuel Refueling Infrastructure
North Carolina provides tax credits for facilities that dispense biodiesel and ethanol/gasoline mixtures to encourage availability of alternative fuels.

Alternative Fuel Tax Exemption
Retail sale, use, storage or consumption of alternative fuels is exempt from the state's sales and use tax (7 percent for conventional off road fuel sales).

Alternative Fuel Refueling Infrastructure Tax Credit
Tax credit equal to 15 percent of the cost of construction and installation of a qualified refueling facility that dispenses biodiesel, 100 percent ethanol or ethanol/gasoline blends consisting of at least 70 percent ethanol.

Alternative Fuel and Alternative Fuel Vehicle (AFV) Fund
Credit banking fund that generates funds from the sale of Energy Policy Act of 1992 (EPAct) credits, which enables state agencies to offset the incremental costs of alternative fuel, related refueling infrastructure and purchasing AFVs.

Mobile Source Emission Reduction Grants
Grants from the Department of Environment and Natural Resources Division of Air Quality are available for the incremental cost of purchasing and retrofitting AFVs, implementing idle reduction programs and constructing or installing public alternative fueling stations.

Alternative Fuel Use and Fuel Efficient Vehicle Requirements
Enables state-owned fleets to achieve a 20 percent reduction or displacement of the current petroleum products consumed by January 1, 2010.

Petroleum Displacement Plan for State Agencies
All state agencies, universities, and community colleges that have state-owned vehicle fleets must develop and implement plans to improve the state's use of alternative fuels, synthetic lubricants and efficient vehicles. The plans will achieve a 20 percent reduction or displacement of the current petroleum products consumed by January 1, 2010.

Mass Transit and Car Pooling
(includes increased funding; new and expanded systems; incentives)

Light Rail System – Charlotte Area
The Charlotte Area Transit System (CATS) operates bus routes and trolley service in the metropolitan Charlotte area. In November 2007, CATS opened its LYNX light rail service with 15 stations spread over 9.6 miles across uptown Charlotte. The LYNX system is North Carolina's sole light rail system, and has seen a number of proposals for rail expansion.

Green Technology
(includes manufacturing applications; educational programs to enable green technology development)

Tax Credit for Alternative Fuel Production Facilities
Taxpayers that construct and place in service a commercial facility for processing renewable fuel is allowed a credit equal to 25 percent of the cost to the taxpayer of constructing and equipping the facility.

Clean Fuel Advanced Technology Grants
Grants will be provided for a portion of the incremental costs of alternative fuel vehicles, refueling infrastructure and other projects that reduce mobile emissions in national ambient air quality non-attainment and maintenance counties in North Carolina.

Renewable Energy Tax Credit - Corporate
Provides a corporate tax credit of 35 percent of the cost of renewable energy property constructed, purchased or leased by a taxpayer and placed into service in the state during the taxable year.

Renewable Energy Tax Credit - Personal
Provides for a personal tax credit of 35 percent of the cost of renewable energy property constructed, purchased or leased by a taxpayer and placed into service in the state during the taxable year.

Green Jobs

(includes training; incentives)

North Carolina Green Business Fund Program
The Green Business Fund Program provides grants to North Carolina organizations focused on three priority areas: 1.) Development of biofuels industry in the state; 2.) Development of green building industry in the state; 3.) Attraction and leverage of private sector investments and entrepreneurial growth in environmentally conscious clean technology and renewable energy products and business.

Transportation Energy Center at North Carolina State University
The Transportation Energy Center is meant to be a catalyst to attract innovative jobs, contribute to reducing the Nation's dependence on imported oil and cut greenhouse gas emissions that contribute to global climate change.

Innovative Legislation

NC GreenPower Production Incentive
Statewide green power program that offers production payments for grid-tied renewable energy electricity generation.

Other Activities

North Carolina State Energy Office
In 2003, The North Carolina Energy Policy Council issued the first state energy plan since 1992, outlining 92 recommendations as the cornerstone for future activities in the state.

Climate Registry
North Carolina participates in the Climate Registry, which aims to develop a common system for entities to report greenhouse gas emissions. The Registry serves as a tool to measure, track, verify and publicly report greenhouse gas emissions consistently and transparently between states. Voluntary, market-based and regulatory greenhouse gas emissions reporting programs are all supported under the Registry.

State Energy Policy Council
Charged to advise and make recommendations on energy policy to the Governor and General Assembly and serves as the central energy policy planning body of the state.

Legislative Commission on Global Climate Change
The Legislative Commission on Global Climate Change was created in 2005. In addition to House and Senate appointees, the 34-member Commission includes leaders from the state power industry, the Manufacturers and Chemical Industry Council, the North Carolina Farm Bureau and Forestry Associations, environmental organizations and academia, among others. The Commission is charged with addressing the threats posed by global warming and determining the costs and benefits of the various mitigation strategies adopted by state and national governments. The Commission also seeks to assess the state's potential economic opportunities in emerging carbon markets.

Climate Action Plan Advisory Group
The Climate Action Plan Advisory Group (CAPAG) was established with the aim of developing proposals for dealing with global climate change in North Carolina. Its final report and recommendations were released at a public meeting on October 16, 2007, in Raleigh. CAPAG is meant to complement the efforts of the Legislative Commission on Global Climate Change.

Industry Reports/North Carolina Utility Programs
According to utility DOE Form 861 filings, the North Carolina utility programs spent $4.9 million in 2006 on energy efficiency and conservation programs alone. Overall, these past and continuing energy efficiency investments have reduced North Carolina 2006 electricity generation by 41,324 MWh or by 0.06 percent. These energy conservation efforts have reduced North Carolina 2006 utility CO_2 emissions by 20,000- 45,000 TPY. A listing and detailed description of these programs can be found atwww.dsireusa.org.

State Contact Information

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OKLAHOMA

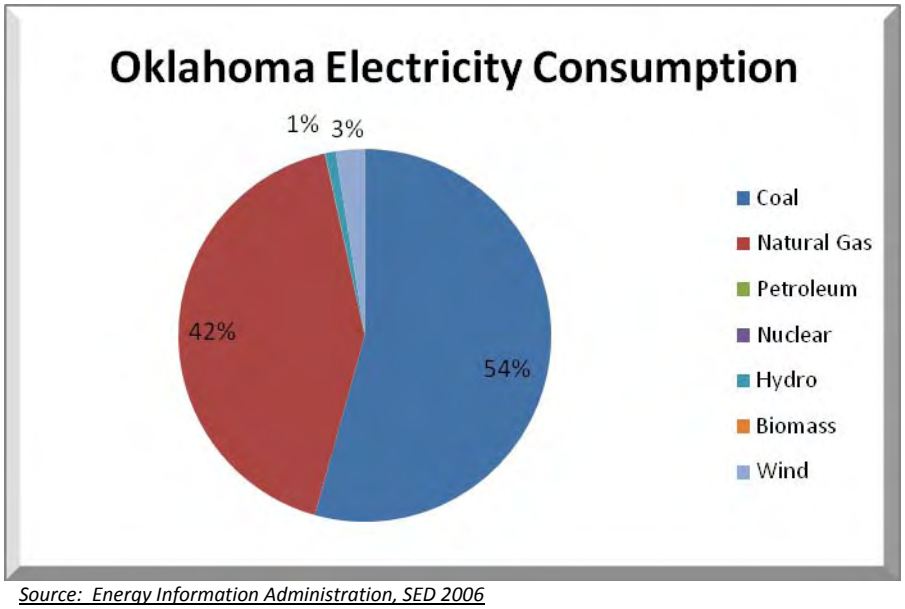
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Oklahoma is one of the most energy rich states in the Nation, with vast natural gas and crude oil reserves. Oklahoma accounts for more than three percent of total U.S. oil production and nearly 10 percent of total U.S. natural gas production. Renewable energy resources—hydroelectric dams, wind farms in the western parts of the state and some biomass generation—also contribute about four percent of electricity to the Oklahoma power grid; and the state has the potential to greatly increase its production of electricity through wind, solar and hydroelectric power. In addition, Oklahoma also has a small amount of coal resources.

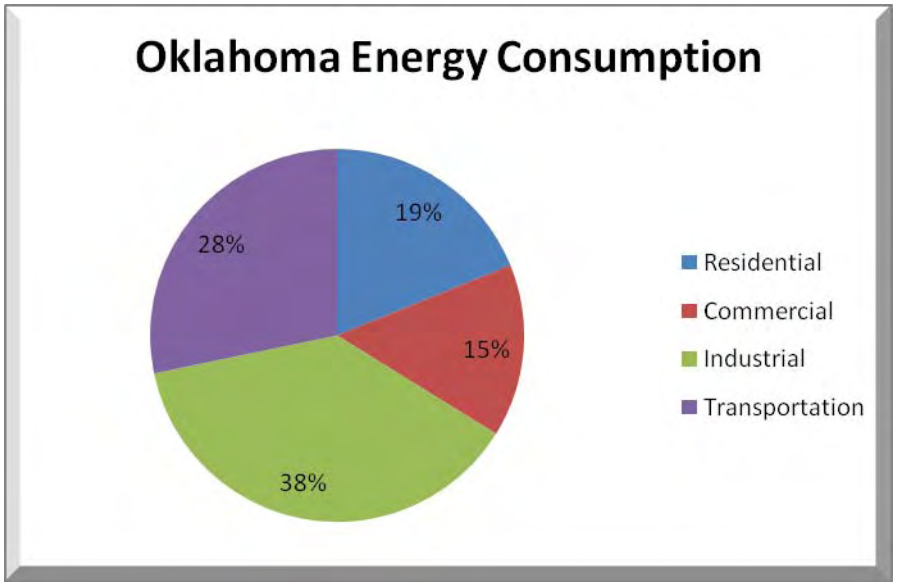
The oil and gas industry make up a significant part of the state's economy. Because the oil and gas industry is extremely energy-intensive, Oklahoma has one of the highest per capita energy consumption rates of any state. The industrial sector is the leading energy-consuming sector in the state, using 38 percent while the transportation sector consumes 28 percent. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in Oklahoma.

Electricity Consumption (by source): At 54 percent, the majority of Oklahoma's electricity is generated from coal power plants. The other half of the state's electricity is largely generated by natural gas. Wind and hydroelectric energy each represent a small fraction of the state's energy use.



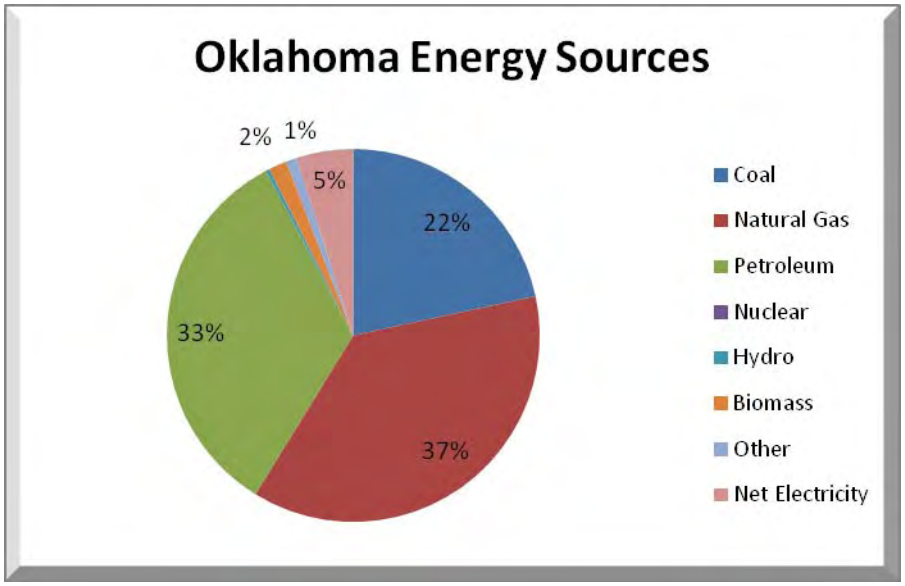
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): Oklahoma's largest energy consuming sector is the industrial sector, representing 38 percent of the state's energy use. Just over a quarter of the state's energy is devoted to the transportation sector, and the remaining third of the state's energy is split between residential and commercial arenas.



Source: Energy Information Administration, SED 2006

Energy Consumption (by source): Oklahoma derives energy primarily from petroleum and natural gas, with each representing a third of each state's energy sources. Coal represents a quarter of the state's sources, and net electricity, biomass, and others represent additional fractions of the state's energy sources.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Conserving Oklahoma Act

Requires all new state-owned buildings or major renovations of state-owned buildings to meet Leadership in Energy and Environmental Design (LEED) standards.

State Agencies Energy Efficiency Plans

The State of Oklahoma requires all state agencies to develop energy efficiency and conservation plans in order to reduce energy consumption of transportation fuels and electricity. The Act, signed by the Governor in 2009, also requires purchasing preferences for the acquisition of energy efficient products, vehicles that utilize alternative fuels and utilization of other renewable energies.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

State Energy Office

Operated by the Oklahoma Department of Commerce, the State Energy Office looks at energy efficiency as a tool for economic development to help sustain and grow Oklahoma communities. It strives to increase energy efficiency and use of renewable resources across the state by providing information, training and technical assistance to energy users and developers.

Energy Standards for Public Buildings

Requires the state to develop a high-performance building certification program for state construction and renovation projects. The requirement will apply to new construction or substantial renovation projects that begin the design phase after July 1, 2008, in buildings larger than 10,000 square feet.

State Loan Program-Schools

A loan/lease fund that is for institutes of higher education to improve energy efficiency. All projects must show reduction in energy consumption, a positive return on investment and ability to repay the loan within six years.

State Loan Program-Local Governments

A revolving loan fund for local governments to make energy efficient improvements to government buildings. All eligible projects need to increase energy efficiency, reduce energy consumption, project a positive return on investment and be repaid within six years of the loan award.

Tax Credit for Manufacturers of Small Wind Turbines

An income tax credit to the manufacturers of small wind turbines for tax years 2003 through 2012. The turbine must incorporate advanced technologies and be tested at the National Wind Technology Center.

Zero-Emission Facilities Production Tax Credit
State income tax credit available to producers of electric power using renewable energy resources from a zero-emission facility located in Oklahoma. The zero-emission facility must have a rated production capacity of one megawatt or greater.

Utility Demand Programs
Oklahoma Corporation Commission adopted demand programs rules for planning and implementation of energy efficiency and demand response programs. The stated goals of these programs are to: (1) Minimize the long-term cost of utility service, and (2) Avoid or delay the need for new generation, transmission, and distribution investment. The rules require all utilities under rate regulation of the Commission propose, at least once every three years, and be responsible for the administration and implementation of a demand portfolio of energy efficiency and demand response programs within their service territories.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Oklahoma Bioenergy Center
Established by Governor Brad Henry in 2007 as a research and economic development collaboration between the University of Oklahoma, Oklahoma State University and the Samuel Roberts Noble Foundation to cultivate the growth of Oklahoma's renewable energy industry. The Center coordinates biofuels research and development being conducted at the University of Oklahoma, Oklahoma State University and the Samuel Roberts Noble Foundation. The Center has established the world's largest stand of switchgrass dedicated to cellulosic ethanol production.

Biofuels Tax Exemption
Biofuels or biodiesel produced by individuals with feedstocks grown on property owned by the same individuals and used in a vehicle owned by the same individuals on public roads and highways are exempt from the state motor fuel excise tax.

Biodiesel Production Tax Credit
Biodiesel production facilities are allowed a credit of $0.20 per gallon of biodiesel produced.

The Oklahoma Wind Power Assessment Committee
Created by the Oklahoma Legislature, the Wind Power Assessment Committee is charged with assessing feasibility, benefits and challenges associated with developing Oklahoma's renewable resources.

The Oklahoma Biofuels Development Act
In 2005, Governor Brad Henry signed the Oklahoma Biofuels Development Act, which encourages the processing, market development, promotion, distribution, and research of fuels derived from grain, ethanol or ethanol components, biodiesel, bio-based lubricants, co-products, or by-products.

Oklahoma Renewable Energy Council
The Council is made up of a broad coalition of individuals, companies, organizations, and agencies committed to developing Oklahoma's bountiful renewable energy resources. It provides education and outreach to the public and supports landowners in developing natural resources while advising the

Oklahoma

Oklahoma Utility Restructuring Task Force and providing analytical and technical support for legislators and national representatives.

25 x 25 Renewable Energy Goal
Endorsed by the Governor, a national initiative to ensure that renewable energy sources comprise 25 percent of the United States' total energy needs by the year 2025. In Oklahoma, development of biofuels, wind energy and other renewable energy sources will contribute to achieving the goal.

Green Power Purchase Programs
A number of Oklahoma utilities offer voluntary Green Power purchase programs. Oklahoma Gas and Electric offers its Wind Power program at a premium of 0.24c/kWh. The WindWorks program offered by the Western Farmers Electric Cooperative, a collection of 19 Oklahoma co-ops, offers wind power at a premium of 0.5c/kWh. The Oklahoma Municipal Power Authority's Pure and Simple program offers consumers the opportunity to purchase wind power at a premium of 1.5c/kWh.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Plains CO_2 Reduction Partnership (PCOR)
Oklahoma is a member of the Plains CO_2 Reduction Partnership (PCOR). Its goal is to develop the necessary framework and infrastructure, conduct field tests of carbon sequestration technologies and evaluate options and potential opportunities for carbon sequestration in the Plain states. According to the *2008 Carbon Sequestration Atlas of the United States and Canada*, PCOR studies have found that Oklahoma has between 11,165-14,033 million metric tons of CO_2 storage potential in its deep saline formations.

AES Shady Point
The AES Shady Point 320 MW coal-fired power plant uses MEA absorption technology to capture 200 TPD $C0_2$ from its flue gas slipstream that is then sold as a food preservative to a Tyson Foods manufacturing plant.

American Electric Power (AEP)
AEP is scheduled to build a chilled ammonium scrubber to remove 1.5 million TPY of CO_2 from a 200 MW equivalent flue gas slipstream from the Northeastern coal-fired power plant. AEP plans to sell the captured CO_2 to SemGreen LLP for enhanced oil recovery.

CO_2 Task Force
Created a Task Force on the Geologic Storage of Carbon Dioxide to study issues necessary to implement the transmission and storage of carbon dioxide in geologic formations.

Oklahoma Carbon Capture and Geologic Sequestration Act
The Oklahoma Carbon Capture and Geologic Sequestration Act provides a program for the transportation and storage of carbon dioxide, and fulfills the state's responsibility for assuring compliance with the federal Safe Drinking Water Act. It apportions jurisdiction for the issuance or denial of permits to establish storage facilities, monitoring and enforcement, and regulatory authority for withdrawal of stored carbon dioxide.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

Gross Production Tax Credit
The Gross Production Tax Credit – an income tax exemption authorized for certain oil and gas operations, including horizontal drilling widely used in shale gas wells – was extended through 2012.

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

Oklahoma Gas & Energy Company Plan for Green Energy
Oklahoma Gas & Energy is building a $211 million high-capacity line that will allow customers to choose "100 percent green" electricity.

Transmission for Wind Generation
Authorizes electric utilities to recover costs, using rate adjustments approved by the Corporation Commission, for transmission upgrades necessary to develop wind power generation provided such upgrades are approved by the Southwest Power Pool and are placed into service before the end of 2013.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Advisory Committee for Sustaining Oklahoma's Energy Resources
Authorizes the Oklahoma Energy Resources Board to create an advisory committee for sustaining Oklahoma's energy resources for the purpose of administering funds for research and development of new technologies in the oil and gas industry.

Consortium for Research, Development and Demonstration of Enhanced Geothermal Systems (EGS)
In October 2008, the DOE announced it would award over $800,000 to a consortium for research, development and demonstration of Enhanced Geothermal Systems (EGS) for next-generation geothermal energy technologies. Hi-Q Geophysical Inc., Ormat Technologies, Inc. and Lawrence Berkeley National Laboratory in Ponca City, Oklahoma, will develop surface and borehole seismic methodologies using both compression and shear waves for characterizing fractures in EGS. The public-private partnership is one of 21 that will receive up to $43 million over four years with the goal of improving EGS' technical feasibility by 2015.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Net Metering

Available in Oklahoma since 1988 under Oklahoma Corporate Commission Order 325195, the rules allow for solar, wind, biomass, hydro, geothermal, municipal solid waste, and combined heat and power.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Alternative Fueling Infrastructure Tax Credit

The state provides a tax credit for alternative fueling infrastructure of up to 50 percent of the cost of installing the infrastructure.

Ethanol Production Tax Credit

Ethanol production facilities are allowed a tax credit of $0.20 per gallon of ethanol produced for 60 months.

Ethanol Fuel Retailer Tax Credit

Retailers may claim motor fuel tax credits of $0.016 per gallon of ethanol sold in Oklahoma, if the retailer provides a price reduction to the consumer of the fuel in the same amount.

Alternative Fuel Vehicle (AFV) and Fueling Infrastructure Loans

The state provides zero percent interest loans up to $10,000 per converted or newly purchased vehicle and up to $150,000 for fueling infrastructure.

Loans for Converting Fleets to Alternative Fuel Vehicle

The state provides a loan program with a three percent interest rate for the cost of converting private fleets to operate on alternative fuels.

Neighborhood Electric Vehicle Access to Roadways

Electric vehicles are allowed to operate on roads with posted speed limits of 35 mph or less to encourage the use of such vehicles (mopeds, golf carts, etc.) rather than conventional vehicles.

Alternative Fuel Labeling

In lieu of motor fuel excise tax, a low annual flat fee applies to all alternative fuel vehicles.

Alternative Fuels Conversion Act

In 2003, Governor Brad Henry signed the Alternative Fuels Conversion Act requiring all school and government vehicles to be converted to operate on an alternative fuel, and all school districts should consider only purchasing school vehicles, which have the capability to operate on an alternative fuel. The Act also requires all school and government vehicles capable of operating on an alternative fuel to use the fuel whenever a refueling station is in operation within a five-mile radius of the respective department or district and the price of the alternative fuel is cost competitive.

Private Access to State Alternative Fueling Stations
The State of Oklahoma offers public access to state owned alternative fueling stations managed by the state Department of Central Services.

Tax Credit for Alternative Fuel Vehicles
A one-time tax credit for investments in qualified clean-burning motor vehicle property was extended from 2010 to 2015, and the definition of "qualified clean-burning motor vehicle fuel property" includes equipment installed to modify vehicles from conventional fuel to hydrogen fuel cell, compressed natural gas, liquefied natural gas, or liquefied petroleum gas propulsion.

Green Technology

(includes manufacturing applications; educational programs to enable green technology development)

Biodiesel Plant Opens (Seaboard Foods) - 2008
This plant, which opened in 2008, is converting pig fat into fuel.

Green Jobs

(includes training; incentives)

Quality Jobs for Wind and Renewable Manufacturing
The Oklahoma Quality Jobs Act program provides qualifying enrolled companies in wind (including administrative, repair, and maintenance services) and other renewable energy manufacturing entities quarterly cash rebates of up to five percent (5%) of taxable wages for up to 10 years. Companies in the program who expand again will receive up to six percent (6%) wage rebates based on meeting certain criteria.

Wind Technician Safety Training
The Oklahoma Department of Commerce developed a wind technician safety curriculum to be designed and implemented with the Oklahoma Department of Career and Technology Education and the Oklahoma Regents for Higher Education.

Other Activities

Office of the Secretary of Energy
The Secretary of Energy is the Governor's chief advisor on energy matters. This office coordinates the Governor's $40 million biofuels initiative that established the Oklahoma Bioenergy Center, collaboration among the state's principle research institutions, the University of Oklahoma, Oklahoma State University and the Noble Foundation. The office also initiated the Demand Side Management rule making at the Corporation Commission to promote greater efficiency in electricity consumption and has guided the effort to develop transmission for Oklahoma's significant wind power resource (estimated at 25,000 megawatts) at both the state legislature and at the Southwest Power Pool. The office is also collaborating with legislative leaders to promote the sequestration of CO_2 in enhanced oil recovery projects.

The Secretary of Energy chairs the Oklahoma Clean Energy Independence Commission. The Commission was established in 2009 with the focus to develop Oklahoma initiatives that will make a significant contribution to the Nation's efforts to achieve clean energy solutions.

Industry Reports/Oklahoma Utility Programs

According to utility Form 861 filings, Oklahoma utility programs spent $110,000 in 2006 on energy efficiency and conservation programs. Overall, these past and continuing energy efficiency investments have reduced Oklahoma 2006 electricity generation by 9,712 MWh or by 0.02 percent. These energy conservation efforts have reduced Oklahoma utility CO_2 emissions by 4,856-10,683 TPY. A listing and detailed description of these programs can be found at www.dsireusa.org.

State Contact Information

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PUERTO RICO

STATE ENERGY DATA

Puerto Rico is heavily dependent on oil for electricity generation (approximately 70 percent of its supply). Most oil used on the Island is imported from South American countries such as Brazil, Argentina and Trinidad. Other sources of energy include natural gas (15%), coal (14%) and hydropower (1%). Puerto Rico consumes very little coal. Puerto Rico is currently trying to increase its production of renewable electricity and reduce its dependence on foreign oil. It has had particular success with solar thermal power, and as of 2007, the island was the fifth largest solar thermal power producer in the U.S. when accounting for the territories.

Puerto Rico's dependency on oil can cause extreme shifts in the cost of electricity due to volitility in the oil market. Average electricity bills range from approximately $150 to $700 per month depending on the price of crude oil (ie. 17 – 27 cents per KWh at a residential rate level).

STATE INITIATIVES

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Energy Efficient Practices at State Government Program

Energy management program for government agencies that addresses facilities, energy management and employee awareness to increase the energy efficiency of government facilities and operations and to reduce the impact of rising energy costs of the government operating budget. Under Governor Fortuño's Executive Order, state agencies have been directed to reduce their energy use by 10 percent.

The Puerto Rico Energy Affairs Administration has offered several workshops for businesses interested in developing renewable energy and energy efficiency such as the development of green buildings.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Puerto Rico Electric Authority Renewable Energy Projects

PREPA has signed an agreement with the Compania de Vientos (Wind Company) of Puerto Rico to construct 20 wind turbines.

PREPA has signed a contract to develop a waste to energy facility in Caguas. PREPA is also in the process of considering several other renewable energy projects which include wind, solar, waste to energy and ocean thermal technologies.

The Economic Incentive Act of 2008 provides a tax credit to industrial customers that invest in renewable energy sources from 2008 through the end of 2017. It also includes tax credits for the purchase of renewable energy equipment.

In 2008, Executive Orders were signed that provided incentives for the development of solar energy technologies.

In June 2009, Governor Fortuño announced the creation of a "green energy fund" that will promote the development of renewable energy projects by providing an easily monetized incentive to renewable generators. This incentive would be a long term purchase contract in which the green energy fund would purchase renewable energy certificates from green energy producers.

Puerto Rico is committed to meeting the federal renewable electricity standard (RES) in the American Clean Energy Security Act recently passed by the House (ie. 20 percent renewable energy generation by 2020).

In addition to preparing for a federal RES, Puerto Rico is also considering the adoption of a state renewable portfolio standard that would apply to all sectors on the Island.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

PREPA is interested in making distribution and electrical grid improvements, especially through the smart grid funding in ARRA.

Oil and Oil Shale

(includes new sources of supply; incentives)

In 2008, Resident Commissioner Fortuño asked the U.S. Geological Survey to do an updated resource assessment of conventional and renewable resource potential of the submerged lands of the Puerto Rico exclusive economic zone (EEZ). In 2009, the USGS has started the assessment and will determine if there is any oil and gas potential off of the coasts of Puerto Rico but no results have been posted to date.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

PREPA is working on a plan to replace some of its existing oil fired units with natural gas (LNG) in order to reduce costs and carbon emissions.

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

Puerto Rico is in discussions with the U.S. Virgin Islands and other neighbors in the Caribbean about the possibility of building an undersea power cable in order to sell energy. In addition, Puerto Rico is looking at the possibility of joining a Caribbean grid. The grid would originate in Colombia, encompass several Caribbean Islands as well as parts of Mexico and Costa Rica.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

The University of Puerto Rico, Mayaguez has a research facility that is involved in the development of biofuels, solar photovoltaics, various energy efficiency technologies and energy integration. Another potential research facility in this area is the University of Turabo.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Net Metering

The Economic Incentives Act of 2008 included provisions that would allow PREPA customers to use, via a net metering system, electricity generated from solar, wind or other renewable energy sources. Residential systems with a generating capacity of up to 25 kilowatts (kW) and nonresidential systems up to 1 megawatt (MW) are eligible.

Mass Transit and Car Pooling

(includes increased funding; new and expanded systems; incentives)

Puerto Rico is currently looking to upgrade its urban trains and to develop a new fleet of buses to promote diesel emission reductions.

Green Jobs

(includes training; incentives)

Puerto Rico is looking to tap ARRA funds from the Department of Labor to create jobs related to the weatherization program and other clean tech related jobs. It is coordinating these efforts with the Puerto Rico Energy Affairs Administration, Office of the Chief Information Officer and Academia.

Other Activities

In May 2009, Governor Fortuño joined 29 other Governors in the Governors energy and climate coalition which is supportive of passing federal climate change legislation and also supports a strong state/federal partnership to create and preserve U.S. jobs especially in the clean tech industry.

State Contact Information

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SOUTH CAROLINA

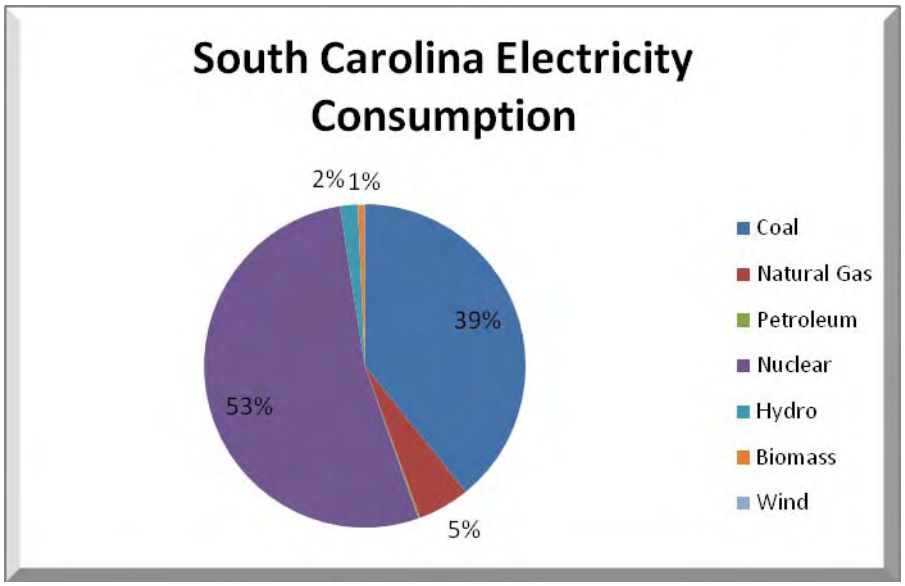
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

While South Carolina does not have the natural gas, oil or coal resources of other states in the Southern region, it produces much of its own electricity through nuclear power. In fact, nuclear power accounts for more than half of South Carolina's electricity generation. With four active nuclear power plants, South Carolina is among the top nuclear power producers in the United States. Coal imported primarily from Kentucky, West Virginia and Tennessee fuels almost 40 percent of net electricity generation and South Carolina produces hydroelectric power from facilities located in several river and lake basins.

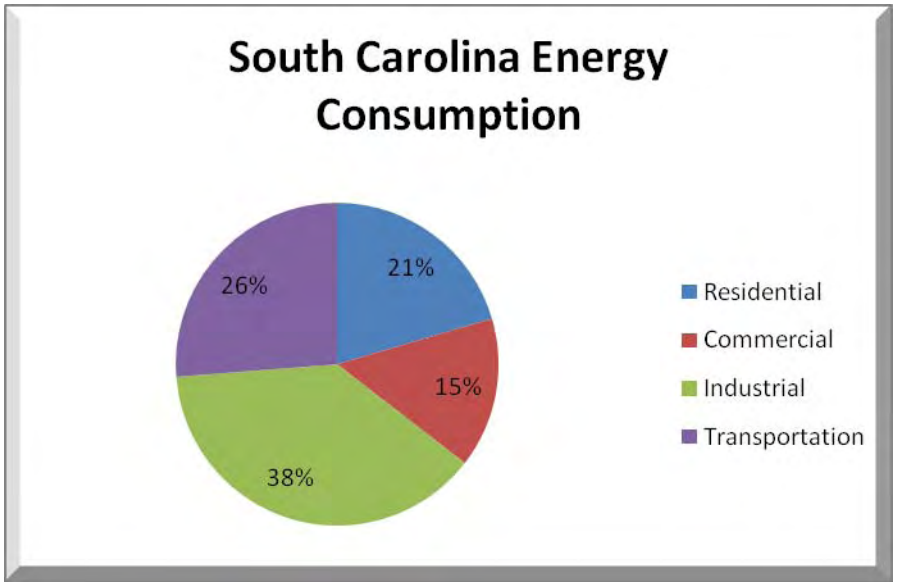
South Carolina's industrial sector—including the energy-intensive chemical manufacturing industry—accounts for close to forty percent of state energy consumption and the transportation sector accounts for approximately 26 percent. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in South Carolina.

Electricity Consumption (by source): At 53 percent, the majority of South Carolina's energy is generated from nuclear power plants, with a lesser but still substantial portion coming from coal (39%). The remaining electric power is generated by natural gas, hydro and biomass.



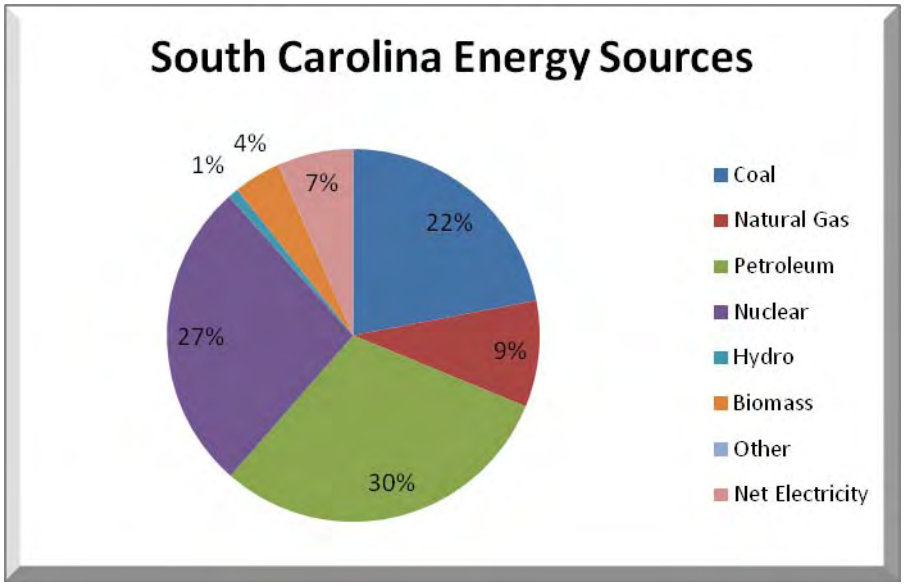
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): South Carolina's most energy-intensive sector is its industrial sector at 39 percent. A quarter of South Carolina's power is consumed by the transportation sector, and the remaining third is used by residential and commercial users.



Source: Energy Information Administration, SED 2006

Energy Consumption (by source): South Carolina's leading energy sources are petroleum and coal, with each representing more than a quarter of the state's energy. Nearly another fourth of the state's energy is provided by coal. The remaining quarter is a mix of natural gas, net electricity, biomass and hydroelectric power.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation and Energy Efficiency

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives; buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

State Energy Efficiency Act

The South Carolina Energy Efficiency Act requires the State Energy Office to assist state agencies by identifying and compiling a list of energy efficient "goods." The statute also directs the State Energy Office to develop energy efficient codes/standards for state-owned and leased buildings, including public school buildings and requires state agencies and school districts to adhere to these codes.

Energy Use Reduction Legislation

Section 48-52-620, Code of Laws of South Carolina, was amended in 2008 to require all state agencies, school districts and public colleges and universities to develop energy conservation plans to reduce their energy consumption by one percent annually during fiscal years 2009-2013 and by a total of a 20 percent reduction in energy use by 2020, as compared to 2000 levels.

The specific requirements of this legislation include the following:

- Energy Conservation Plans – Each state agency and public school district is required to develop an energy conservation plan that addresses how the legislatively mandated energy use reduction goals are to be met. These plans are to be submitted to the South Carolina Energy Office (SCEO).
- Annual Progress Reports – Each state agency and public school district is also required to submit an annual progress report to the South Carolina Energy Office that outlines actions taken to implement its energy conservation plan and chronicles progress made in achieving its energy reduction goals.
- Annual Report to Legislature – The South Carolina Energy Office is required, in turn, to compile the annual progress reports submitted by the state agencies and public school districts and submit an overall annual report to the General Assembly.
- Replacement of incandescent bulbs in all state buildings with CFLs, once incandescent bulbs need to be replaced.

The SCEO has held workshops to assist agencies and school districts to develop energy plans and will modify the existing data collection program to accommodate the new requirements.

Green Building

Code of Laws of South Carolina was amended in 2007 to require new or substantially renovated state buildings to meet LEED Silver or the equivalent standards. In addition, the SCEO offers EarthCraft Homes training in cooperation with SouthFace, and has been instrumental in establishing the South Carolina Chapter of the U.S. Green Building Council.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Green Power Programs

Anyone can contribute to Palmetto Clean Energy (PaCE) www.palmettocleanenergy.org but it is particularly convenient for customers of South Carolina's investor owned utilities, who can "purchase" green power by making tax deductible contributions through their utility bills. Customers of the state-owned utility Santee Cooper can purchase green power through that utility's Green Power program, as can customers of the state's cooperatives.

Wind Power

The South Carolina Energy Office (SCEO) has conducted several studies to assess the potential for clean energy within the state, including Wind Energy Resource Maps of South Carolina (AWS Truewind, LLC, 2005, Wind Energy Resource Maps of South Carolina), http://www.energy.sc.gov/publications/South_Carolina_Wind_Mapping_Report.pdf

The South Carolina Energy Office has received a Department of Energy grant to collect data relevant to tidal and wave opportunities, as well as wind. The grant will also explore transmission related issues and develop a regulatory framework for offshore energy options.

Act No. 318 of 2008 created the Wind Energy Production Farms Feasibility Study Committee. The purpose of the committee is to review, study and make recommendations regarding the feasibility of windmill farms in the state including, but not limited to, whether South Carolina is a suitable site for wind production on land or in offshore areas, the economic and environmental impact to the state and the cost of wind farm installation and operation in the state. The group has not yet met, since not all of the appointments to the committee have been made. (http://www.scstatehouse.gov/sess117_2007-2008/bills/4766.htm).

Biomass

According to the most recent S.C. Energy Office "Combustion Renewable Energy Users" inventory (http://www.energy.sc.gov/publications/Renewable%20Energy%20Combustion%20Facilities%202-1-09.pdf), based on DHEC permitting data a total of 34 mills, pulp-and-paper operations, and other facilities have boilers with a capacity of 2,257 MW-equivalent. Some of these operations currently do produce electricity with turbines, but many more could be retrofitted if the economics of purchasing the turbine and selling excess electricity to the grid were better. Additionally, the inventory accounts for 28.1 MW-equivalent of landfill gas being produced, 20.3 MW of which is producing electricity that is being fed to the grid. According to the U.S. EPA Landfill Methane Outreach program, this number could increase by an additional 30.44 MW (*MW and Direct Use Potential from Candidate Landfills in South Carolina*, 8-2-06).

The South Carolina Energy Office has established a very successful S.C. Biomass Council, which brings together potential producers, entrepreneurs, users and state regulators and promoters to further the development of biomass energy. In addition a renewable energy "one stop shop" facilitates potential biomass development by making it possible for a developer to meet with all state and federal regulators simultaneously.

South Carolina has established some of the most generous incentive and tax credit programs in the South. The tax credits are available for the production and distribution equipment for ethanol and biodiesel and incentive payments are available to retailers who distribute alternative fuels. Additionally, tax credits are available for biomass-to-energy equipment and incentive payments are available for each unit of energy produced from biomass. More information on the credits can be found at http://www.dsireusa.org/library/includes/map2.cfm?CurrentPageID=1&State=SC&RE=1&EE=1

Solar /small hydro

South Carolina has a 25 percent tax credit for solar and small hydro installation and equipment (maximum per year $3,500, but can be extended over 10 years). See http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=SC08F&state=SC&CurrentPageID=1&RE=1&EE=1

South Carolina Solar Council, which is a division of the American Solar Energy Society (ASES) serves as an education and advocacy organization to increase the visibility of solar energy and raise awareness of the opportunities and existing barriers to solar use.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

Interconnection Standards—Clean Distributed Generation

The PSC adopted a simplified interconnection standard for small distributed generation in December 2006. The standard addresses renewable-energy systems and other forms of distributed generation up to 20 kW in capacity for residential systems, and up to 100 kW in capacity for non-residential systems.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Clean Coal Research

Santee Cooper, a state-owned utility, endowed a chair at the University of South Carolina, School of Engineering devoted to exploring clean coal technology.

Southeast Regional Carbon Sequestration Partnership (SECARB)

South Carolina is a member of the Southeast Regional Carbon Sequestration Partnership (SECARB) being coordinated by the Southern States Energy Board. Its goal is to develop the necessary framework and infrastructure, conduct field tests of carbon sequestration technologies and evaluate options and potential opportunities for carbon sequestration in the Southeast.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

Study Committee

The General Assembly established an offshore natural gas study committee, which presented a preliminary report late in 2008, and continues to meet. The report was supportive of development off the coast of the state, and has sparked the introduction of several bills.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

Clean Energy Legislation

Legislation passed in 2009 that defined nuclear energy as a clean energy option (S. 220, S. 232).

New Nuclear Capacity

Duke Energy, SCANA, and Santee Cooper are planning to build 4,400 MW of new nuclear capacity in South Carolina by 2020. Their construction would increase South Carolina's nuclear generation by more than 60 percent with all four reactors taken into account.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Hydrogen Research

The University of South Carolina is home to the Nation's only National Science Foundation Industry/University Cooperative for Fuel Cells. The industry-university cooperative performs research aimed at developing and commercializing the use of fuel cells. There are more than a dozen corporate members of the Center. In addition, South Carolina and the city of Columbia are working with other South Carolina research universities, industry and government—including the Savannah River National Laboratory—in the South Carolina Hydrogen Fuel Cell Alliance. The collaborative will focus on economic development based on hydrogen fuel cells and other alternative forms of energy.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Net Metering

In 2008, the Public Service Commission instructed investor owned utilities to offer net metering to customers (Order 2008-416) and directed staff to schedule a hearing to review the net metering programs after they had been in effect for 12 months.

Santee Cooper, the state-owned utility, is not regulated by the Public Service Commission, but does offer a net metering program to its customers. Many of the state's cooperatives also offer net metering.

The South Carolina Energy Office, along with the South Carolina Office of Regulatory Staff, released a report entitled "Net Metering in South Carolina: Current Status and Recommendations." The document

is a response to H. 3395 (2008), a joint resolution which asks for recommendations for establishing net metering programs in South Carolina. It can be found at http://www.energy.sc.gov/publications/Final%20Net%20Metering%20Report.pdf. The study recommends a simplified approach, offering a 1:1 payback for residential net metering customers.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Alternative Fuel Requirements

Whenever practical and economically feasible, all state agencies operating alternative fuel vehicles are required to use alternative fuels in those vehicles.

Anti-idling legislation

H. 3853, passed in 2008, prohibits commercial diesel vehicles from idling more than 10 minutes in any 60-minute period.

B5 requirement

The state is required to utilize B5 in all state-owned diesel pumps and wherever possible to utilize B20 in the school bus fleet.

Green Fleet

The state should consider lifecycle costs when purchasing new vehicles such as hybrid vehicles and purchase alternative fuel vehicles wherever practical and economically feasible.

Green Jobs

(includes training; incentives)

Energy Efficiency Training Collaborative

The South Carolina Energy Office, the Governor's Office of Economic Opportunity (Weatherization Assistance Program) and the South Carolina Technical College system have formed the Energy Efficiency Training Collaborative to ensure the availability of well-trained energy efficiency and renewable energy workers in the future.

Other Activities

Industry Reports/South Carolina Utilities Programs

According to utility DOE Form 861 filings, the South Carolina utility programs spent $13.6 million in 2006 on energy efficiency and conservation programs alone. Overall, these past and continuing energy efficiency investments have reduced South Carolina 2006 electricity generation by 101,240 MWh or by 0.20 percent. These energy conservation efforts have reduced South Carolina 2006 utility CO_2 emissions by 50-110,000 TPY. A listing and detailed description of these programs can be found at: www.dsireusa.org.

State Contact Information

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www.energy.sc.gov/

TENNESSEE

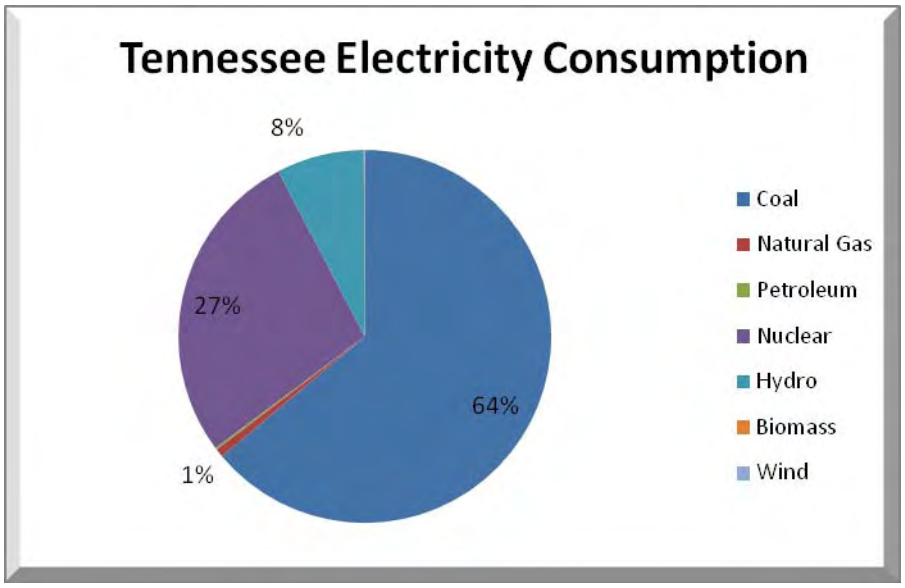
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Tennessee is unique in that the federally administered Tennessee Valley Authority controls nearly all of the state's electricity generation. The state is one of the leading nuclear power generating states in the Nation, producing approximately 27 percent of its electricity generation mix from nuclear energy. Tennessee is also one of the leading hydroelectric power producers east of the Rocky Mountains, producing about eight percent of the state's electricity mix from this source. It also produces a small amount of coal and petroleum. However, most of the coal used to generate power is imported from other states. Coal-fired power plants typically generate about 64 percent of the electricity produced in Tennessee; nuclear power and hydroelectric power supply the remainder.

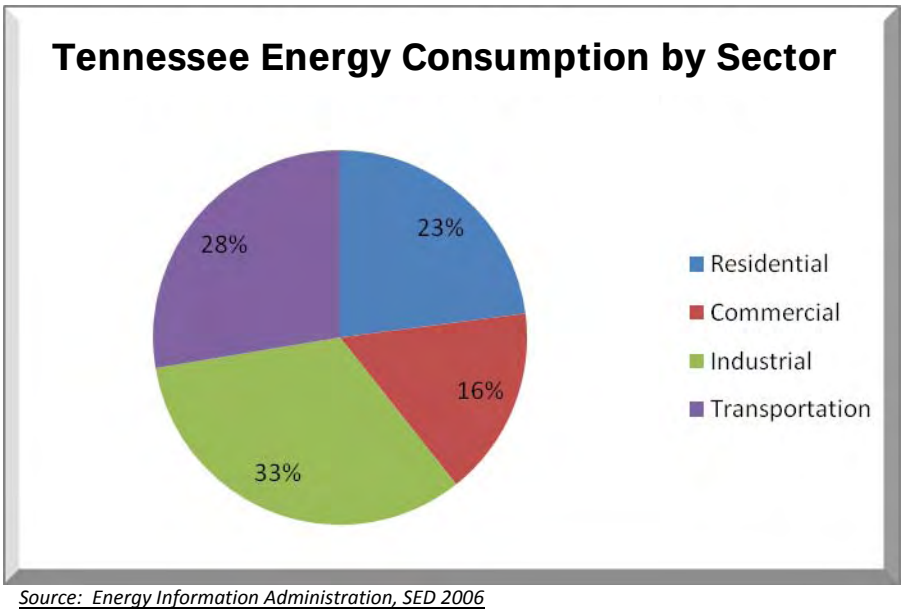
The industrial and transportation sectors account for over 60 percent of energy consumption in the state. Major energy sources consumed in the state are petroleum, coal and nuclear. Natural gas and biomass combined equal about one-fifth of the energy consumed in Tennessee. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in Tennessee.

Electricity Consumption (by source): At 63 percent of the mix, most of Tennessee's consumed electricity is generated by coal plants. While just over a quarter of the state's power is generated from nuclear plants and hydroelectric power, which produces another eight percent of the state's electricity.



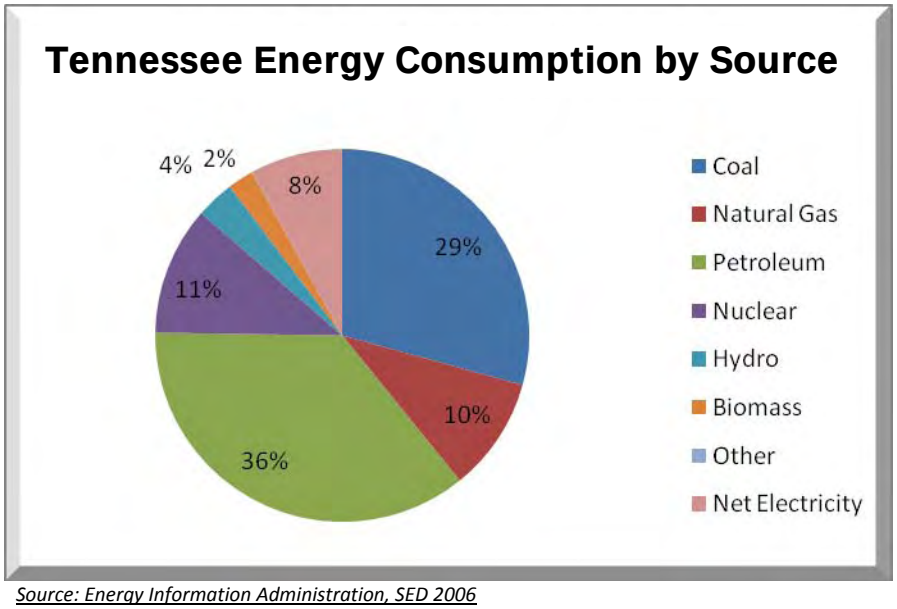
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): One-third of Tennessee's energy is consumed by its industrial sector. Twenty-eight percent is used by transportation, 23 percent by residential areas and 16 percent by commercial areas.



Source: Energy Information Administration, SED 2006

Energy Consumption (by source): At 37 percent, the largest source of energy for Tennessee is petroleum, followed by coal (29%). Smaller energy sources include nuclear, natural gas and net electricity.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Task Force on Energy Policy

On March 19, 2008, Governor Phil Bredesen issued Executive Order No. 54 creating the Tennessee Task Force on Energy Policy, and charged it with identifying opportunities for government to lead by example in energy conservation with emphasis on construction, management and vehicle fleets. The Task Force identifies potential policies, legislation, regulations or incentives to encourage statewide energy efficiency and conservation in the public and private sectors, as well as potential partnerships and collaborations to encourage research and development. It also works to find strategies for expanding use of alternative fuels and renewable energy sources.

Tennessee Clean Energy Future Act of 2009

Governor Phil Bredesen introduced the sweeping energy legislation during the 2009 Session of the Tennessee General Assembly. The Tennessee Clean Energy Future Act was overwhelmingly passed by the General Assembly and will be signed into law by early July.

The Tennessee Clean Energy Future Act of 2009 focused on three areas:

1. Requiring state government to "lead by example" with improved energy management in its buildings and vehicle fleet;
2. Encouraging job creation in the clean-energy technology industry with key incentives; and
3. Promoting greater energy efficiency in Tennessee's residential sector.

Major components of the legislation include:

- **Launching a five-year accelerated program to improve energy efficiency in state buildings.** Cost-saving improvements may include overhauling mechanical systems or replacing equipment such as lighting and controls with more advanced technology. Accelerating retrofits or repairs across state agencies — which manage approximately 30 million square feet of building space — could cost tens of millions of dollars but will save even more in reduced energy costs. Improvements could be financed using bonds, provided that the resulting energy savings can pay back the bonds.

- **Requiring Energy Star equipment and appliances in state agencies.** ENERGY STAR, a widely accepted labeling program operated by the U.S. Environmental Protection Agency and Department of Energy, promotes energy-efficient products and lower greenhouse gas emissions. Last December, Governor Bredesen signed an executive order launching the move toward ENERGY STAR.

- **Mandating more energy-efficient cars in the state's passenger motor vehicle fleet.** The target goal for energy-efficient cars in the passenger motor vehicle fleet will be raised to 100 percent. Most immediately, 25 percent of newly purchased vehicles must be hybrid electric or compact fuel-efficient cars. Electric vehicles, manufactured by carmakers including Nissan,

Tennessee

could be integrated into the state fleet when they become commercially available in 2010, pending a standard procurement process and the deployment of charging infrastructure.

- **Designating the clean energy technology sector as eligible for Tennessee's emerging industry tax credit.** Businesses engaged in the clean energy tech sector — including research and development, manufacturing or installation of certain equipment — will be designated eligible for the existing emerging industry tax credit. Firms involved with energy efficiency or producing energy from sources such as solar, wind and biomass, as well as advanced coal and nuclear, can qualify for moderate rebates on sales and use taxes and expanded eligibility for job-creation tax credits.

- **Establishing a limited statewide residential building code.** In local areas that do not currently enforce a residential building code, the state Department of Commerce and Insurance will enforce the International Residential Code (IRC), a commonly accepted code that sets minimum standards for new construction of one- and two-family dwellings as it relates to basic measures like energy efficiency. As a safety matter, the Department already provides electrical inspections in areas without a residential code. Lower energy costs are expected to offset additional inspection fees.

- **Expanding eligibility for federal funds used to "weatherize" existing homes in low-income areas.** Under the American Recovery and Reinvestment Act of 2009, Tennessee is poised to receive approximately $99 million through the U.S. Department of Energy's Weatherization Assistance Program. The program, administered by the state Department of Human Services (DHS), promotes energy efficiency through installing measures such as insulation and weather-stripping in low-income homes. DHS will streamline rules to allow for a rapid and responsible distribution of new dollars — including ensuring that contractors doing the work are qualified. Additionally, eligibility for qualifying homeowners will increase from 125 percent to 200 percent of poverty, or $44,100 for a family of four.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Small Business Energy Loan Program

The Tennessee Small Business Energy Loan Program provides low-interest loans of up to $300,000 to qualified Tennessee-based businesses to help upgrade the level of energy efficiency in their buildings, plants and to improve manufacturing processes. Companies with fewer than 300 employees or less than $3.5 million in annual gross sales or receipts are eligible to apply for loans to install insulation, double pane windows, energy efficient heating, cooling and ventilation equipment and energy efficient lighting. Other measures shown to save energy or decrease demand are also eligible for funding. Free energy audits are available to help interested companies identify potential sources of energy efficiency.

Loans can be repaid over a period of time not to exceed seven years. A zero percent (0%) interest loan

is available for businesses located in Three-Star communities. For businesses located in all other communities, the loan is available at the rate of three percent (3% loan).

Local Government Energy Loan Program
The Local Government Energy Efficiency Loan Program offers low interest loans to municipal and county governments for energy efficiency-related projects in courthouses, administration buildings, schools, maintenance facilities and any other building owned by the city and/or county. Eligible projects include energy efficient lighting, heating, ventilation and air conditioning and boiler rebuilding, replacement or modification. Local governments may borrow up to $500,000 and repay the loan annually for seven years. A zero percent (0%) interest loan is available for businesses located in Three-Star and Main Street communities. Free energy audits and technical assistance is available to all local government institutions regardless of whether they borrow or loan funds. For local governments located in all other communities, the loan is available at the rate of three percent (3%).

Energy Efficient Schools Initiative
Enacts the "Energy Efficient Schools Initiative [EESI] of 2008"; creates an 11 member Energy Efficient Schools Council and sets out the requirements for selection of members, term of members, expenses eligible for reimbursement, purpose of the Council, election of officers; authorizes the Council to hire staff and raise private funds to support initiatives; authorizes the Council to establish a five member technical advisory committee; authorizes the Council to award grants and loans to school systems for qualifying capital outlay projects; requires the Comptroller of the Treasury to conduct an annual audit of the Council; and establishes a separate energy efficient school fund in the State Treasury.

Main Street Lighting Grant Program
The program provides grants to local governments in Tennessee for the purchase and installation of exterior lighting retrofits. Grant funds are used for energy efficient street lighting, park lighting and/or traffic lighting.

Tennessee Energy Education Network
The network, which has been in existence for more than 20 years, was developed to promote energy education programs for K-12 schools across the state. Its goal is to teach students the importance of energy efficiency so they can make wise energy choices in the future. We realize the choices they make will impact the communities in which they live. This program and staff have been recognized nationally for their efforts.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Tennessee Clean Energy Technology Grant
The Tennessee Economic and Community Development Energy Division is now offering a pilot grant program for businesses to install renewable energy systems at their facilities. To qualify, the facility where the system will be installed must undergo an energy audit. The grant amounts are 40 percent of the installed cost for solar photovoltaic (PV) systems, wind, solar water heating, hydrogen fuel cells and solar hybrid lighting up to a maximum of $75,000. The minimum grant amount is $5,000.

Solar America Cities – Knoxville
In March 2008, DOE named Knoxville as one of its 25 partner cities in its Solar America Cities program. Through this partnership, Knoxville will be awarded $200,000 over a two-year period to help finance various initiatives developed to reduce barriers to local generation of solar power. In support, TVA is matching this grant with $50,000 annually. DOE will also contribute $200,000 worth of technical assistance towards the program initiatives, and TVA and KUB have both pledged additional technical and staff assistance.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

TVA Generation Partners
This program provides support and incentives for the installation of solar and wind generating facilities. TVA credits 100-percent of the green power at a rate of 15 cents per kilowatt-hour on monthly electric bills. For commercial customers over 50 kilowatt-hours, the credit is 20 cents per kilowatt-hour.

Tennessee Valley Authority's Green Power Switch Program
Tennessee participates in the TVA Green Power Switch Program, which provides production-based incentives for solar photovoltaic (PV) and wind projects to residential/small-commercial customers and incentives for PV projects to large commercial customers.

Tennessee Valley Authority (TVA) Interconnection Service
TVA adopted a modified version of PURPA 2005 to make available upon request interconnection service for generators with output of 20MW or less to any electric consumer it serves. TVA is allowing the distribution utilities that operate in its territory the flexibility to create their own interconnection procedures that are similar to TVA's.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Southeast Regional Carbon Sequestration Partnership (SECARB)
Tennessee Valley Authority has been an active partner in SECARB since its inception in 2002. SECARB is one of seven regional partnerships funded through U.S. Department of Energy's National Energy Technology Laboratory (NETL) devoted to the development and deployment of viable carbon sequestration technologies. SECARB is a diverse partnership managed through the Southern States Energy Board (SSEB).

Tennessee Eastman Coal Gasification Plant – Kingsport, Tennessee
In June 2008, the Tennessee Eastman coal gasification plant in Kingsport, Tennessee celebrated its 25th Anniversary as one of the Nation's first coal gasification sites. Today, the company's coal gasification processes use about 1,300 tons of coal per day to produce industrial chemicals, fibers and plastics.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

TVA's Nuclear Program

Watts Bar Unit 2 is scheduled to go on line 2013.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Oak Ridge National Laboratory (ORNL)

Oak Ridge National Laboratory is the Department of Energy's largest science and energy laboratory. Managed since April 2000 by a partnership of the University of Tennessee and Battelle, ORNL was established in 1943 as a part of the secret Manhattan Project to pioneer a method for producing and separating plutonium. During the 1950s and 1960s, ORNL became an international center for the study of nuclear energy and related research in the physical and life sciences. With the creation of DOE in the 1970s, ORNL's mission broadened to include a variety of energy technologies and strategies.

ORNL has a staff of more than 4,300 and annually hosts approximately 3,000 guest researchers who spend two weeks or longer in Oak Ridge. Annual funding exceeds $1.4 billion. As an international leader in a range of scientific areas that support the Department of Energy's mission, ORNL has six major mission roles: neutron science, energy, high-performance computing, systems biology, materials science at the nanoscale and national security. ORNL's leadership role in the Nation's energy future includes hosting the U.S. project office for the ITER international fusion experiment and the Office of Science sponsored Bioenergy Science Center.

Already the world's most powerful neutron source, the $1.4 billion Spallation Neutron Source, combined with the upgraded High Flux Isotope Reactor, makes Oak Ridge the world's foremost center for neutron science research. The leadership computing facility is home to the world's most powerful supercomputers.

ORNL is completing a $350 million project to provide a modern campus for the next generation of great science. A unique combination of federal, state, and private funds is supporting the construction of 13 new facilities, including the Center for Nanophase Materials Sciences, the Advanced Microscopy Laboratory, the Office of Science's Leadership Computing Facility for unclassified high-performance computing, the Chemical and Materials Sciences Laboratory and the state-funded joint institutes for computational sciences, biological sciences, and neutron sciences.

Tennessee Energy Institute

Headquartered at the University of Memphis, the Tennessee Energy Institute assists the Tennessee Department of Economic & Community Development, Energy Division, with the implementation and promotion of energy savings programs to small businesses, local government and school systems with the goals of improving operational efficiencies and preserving global natural resources.

Tennessee Biofuels Initiative
Partnership between the University of Tennessee and DuPont to advance the state's clean energy technology initiatives. The partnering will construct a pilot-scale biorefinery and state-of-the-art research and development facility for cellulosic ethanol. The groundbreaking event for the biorefinery was held on October 14, 2008. The state has provided the project with a $70.5 million total commitment, including $40.7 million for biorefinery construction. The funding is being combined with a substantial investment from DuPont Danisco Cellulosic Ethanol to construct the high-tech research facility.

Trane USA – McEwen, Tennessee
In December 2008, the Department of Energy (DOE) announced the award of 16 new Indefinite Delivery Indefinite Quantity (IDIQ) Energy Savings Performance Contracts (ESPCs) that could result in up to $80 billion in energy efficiency, renewable energy and water conservation projects at federally-owned buildings and facilities. Trane, USA of McEwen, Tennessee, a subsidiary of Ingersoll Rand and a provider of HVAC and building management systems, received one of the contracts. The contract has a maximum lifetime value of $5 billion.

Vehicle Fleet Conservation and Alternative Fuels Programs
(includes infrastructure; anti-idling programs; fleet mileage standards)

Biofuels Strategy and Outreach Campaign
The Governor's Interagency Alternative Fuels Working group, supported administratively by the Tennessee Department of Environment and Conservation, was established to develop a comprehensive state alternative fuels strategy to make Tennessee a leader in the production, distribution and use of biofuels. The Working Group developed BioTENN, a comprehensive, statewide public education and outreach campaign to increase public awareness and understanding of alternative fuels, particularly biofuels. Furthermore, state agencies should strive to use ethanol and biodiesel in appropriate state-owned vehicles whenever possible and should support the development of biofuels fueling infrastructure (Reference Executive Order 33, 2006).

Biofuels Fueling Infrastructure Grants
The Tennessee Department of Transportation (TDOT) engages in public-private partnerships with transportation fuel providers, including, but not limited to farmer cooperatives, to install fueling facilities. Fueling facilities include storage tanks and fuel pumps dedicated to dispensing biofuels, including ethanol (E85) and biodiesel (B20). TDOT administers the *Biofuel Green Island Corridor Grant Project*, to provide financial assistance to help pay the capital costs of purchasing, preparing, and installing fuel storage tanks and fuel pumps for biofuels at private sector fuel stations (Reference Tennessee Code 54-1-136 and Executive Order 33, 2006).

I-65 Refueling Corridor
Interstate 65, extending between Gary, Indiana, and Mobile, Alabama, is the Nation's first "biofuels corridor." The corridor designation means that a driver is no more than 100 miles from a participating E85 retailer. I-65 corridor now has 15 biofuels fueling sites in Alabama, 19 in Indiana, and three each in Tennessee and Kentucky. Tennessee, along with Indiana, Kentucky and Alabama were stakeholders supporting the local infrastructure development.

Clean Cities of Tennessee
East Tennessee Clean Fuels Coalition and Clean Cities of Middle Tennessee program coordinators meet with city/county local government officials, chamber of commerce officials, public & private fleet directors and fuel suppliers to market the Clean Cities programs and to advance use of alternative fuels.

School Bus Pilot Diesel Retrofit Project (TDOT)
June, 2008 - This program is aimed at improving air quality emissions in Tennessee. Grant funding is available to school districts and emphasis is placed on conversion to B20.

Biodiesel Production Incentive
The Tennessee biodiesel manufacturers' incentive fund provides $0.20 per gallon of biodiesel fuel produced and sold to Tennessee companies. Each manufacturer is eligible to receive incentives for producing up to 10 million gallons of biodiesel annually. Biodiesel is defined as mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats that meet the registration requirements for fuels and fuel additives established by the U.S. Environmental Protection Agency and conform to ASTM specification D6751 (Reference Tennessee Code 67-3-103 and 67-3-423).

Mass Transit and Car Pooling
(includes increased funding; new and expanded systems; incentives)

Tennessee Incentives and Laws
High Occupancy Vehicle (HOV) Lane Exemption
Effective January 1, 2009, Inherently Low Emission Vehicles (ILEVs) or Low Emission and Energy-Efficient Vehicles (LEEEVs) with a gross vehicle weight rating of 26,000 pounds or less are permitted in HOV lanes regardless of the number of people. Such vehicles must be identified by a state decal provided by the state Department of Revenue (Reference Senate Bill 2716, 2008, and Tennessee Code 55-8-188).

Low- and Medium-Speed Vehicle Access to Roadways
A low-speed vehicle is any four-wheeled *electric* vehicle, excluding golf carts, with a top speed greater than 20 mph but not greater than 25 mph, including neighborhood vehicles. Medium-speed vehicles have a top speed between 30 mph and 35 mph. Low- and medium-speed vehicles must comply with the safety standards in Title 49 of the Code of Federal Regulations, section 571.500. Low-speed vehicles are allowed access to roadways with speed limits of up to 35 mph. Low- and medium-speed vehicles may cross an intersection where the road or street has a posted speed limit of more than their top speeds (Reference Senate Bill 2857, 2008, and Tennessee Code 55-8-101 and 55-8-191).

Green Jobs
(includes training; incentives)

The Green Energy Tax Credit
As part of a comprehensive energy strategy, Tennessee offers the Green Energy Tax Credit to certify green energy supply chain manufacturers. The credit will be granted in an amount equal to any carbon tax levied by the Tennessee Valley Authority on a certified manufacturer's energy bill. The credit must be used to offset the certified manufacturer's franchise and excise tax liability. Any tax credit which cannot be used to benefit a certified manufacturer during a fiscal year may be returned to the taxpayer in the form of a cash overpayment.

Emerging Industry Tax Credits
Tennessee law gives the Commissioner of Revenue and the Commissioner of Economic & Community Development broad latitude in classifying certain projects as part of an emerging industry. If companies can demonstrate a strong growth potential and commit to creating jobs which pay above the county's average occupational wage, the state may waive the threshold of 25 new jobs created in order to qualify for the Jobs Tax Credit. Tennessee considers clean energy technology an emerging industry.

Pollution Control Equipment Tax Credit
If a company obtains a certificate from the Tennessee Department of Environment and Conservation certifying that the company's purchase of pollution control equipment is mandated by state, federal or local law and the equipment will result in the reduction of pollution in the water or air or the elimination of hazardous wastes, the equipment can be taxed at salvage value for the purposes of calculating tangible personal property tax. The certificate will also exempt the equipment from sales and use tax and exclude it from calculation of a company's franchise tax liability.

Growing Green: The Potential for Green Job Growth in Tennessee
Tennessee released *Growing Green: The Potential for Green Job Growth in Tennessee* in late January 2009. The report said the state could reduce its unemployment rate, reduce manufacturing job losses and increase income growth by investing in energy efficiency and renewable energy. The state's Department of Labor and Workforce Development's Employment Security Division prepared the report and submitted it to Governor Bredesen's Task Force on Energy Policy. The report states:

- By spending $1.9 billion to expand energy efficiency and renewable energy production over two years, Tennessee could create about 45,000 new jobs.
- By accelerating its investment effort, the state could gain more than 4,200 full-time jobs in wind and nearly 400 in solar components manufacturing by 2015.
- Among the 162 occupations related to green jobs in Tennessee, 75 percent do not require a college education.

Innovative Legislation

Biofuels Production Promotion
The state legislature supports the federal government 25 x 25 Initiative, under which 25 percent of the total energy consumed in the U.S. by 2025 would be produced by domestic agriculture (Reference Senate Joint Resolution 728, 2008).

Other Activities

Climate Registry
Tennessee participates in the Climate Registry, which aims to develop a common system for entities to report greenhouse gas emissions. The Registry serves as a tool to measure, track, verify and publicly report greenhouse gas emissions consistently and transparently between states. Voluntary, market-based and regulatory greenhouse gas emissions reporting programs are all supported under the Registry.

Industry Reports/Tennessee Utility Programs

According to utility Form 861 filings, the Tennessee utility programs spent $7.7million in 2006 on energy efficiency and conservation programs. Overall, these past and continuing energy efficiency investments have reduced Tennessee 2006 electricity generation by 557,201 MWh or by 1.55 percent. These energy conservation efforts have reduced Tennessee utility CO_2 emissions by 278,600-612,900 TPY. A listing and detailed description of these programs can be found at www.dsireusa.org.

State Contact Information

Tennessee Department of Economic & Community Development
312 8th Avenue North, 10th Floor
Nashville, TN 37243
Phone: 615.741.2994
Fax: 615.741.5070
www.tennessee.gov/ecd/CD_office_energy_policy.html

TEXAS

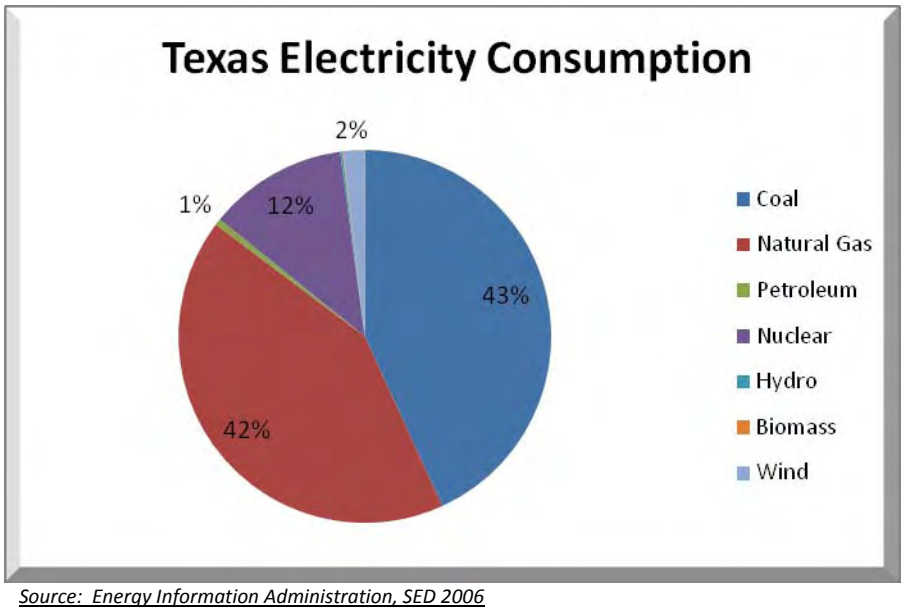
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Texas produces more natural gas and more crude oil than any other state—over a quarter of the domestically produced natural gas and nearly a quarter of domestically produced petroleum. The state also produces a considerable amount of coal and is a major nuclear power generating state. The state also has significant renewable energy sources. The Texas Panhandle and the Gulf Coast South of Galveston have considerable wind resources. In addition, the state has abundant biomass and solar potential. Texas's rich resources allow it to help supply the rest of the Nation with energy.

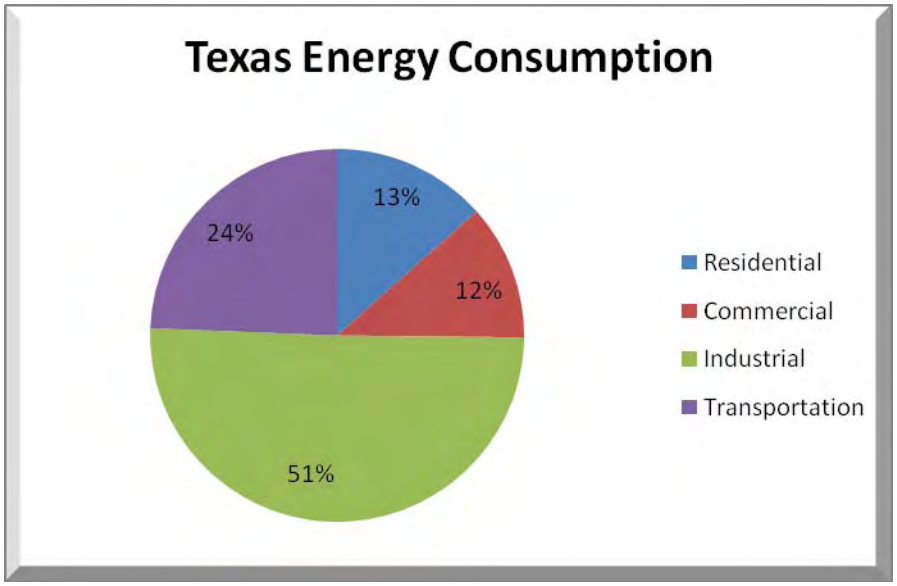
Due to its large population and an energy-intensive economy, the industrial sector consumes 50 percent of the energy in the state. Approximately 80 percent of the state energy sources consumed are petroleum and natural gas. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in Texas.

Electricity Consumption (by source): Electricity in Texas is created primarily by coal and natural gas power plants, together generating over 80 percent of the state's electricity. Nuclear plants generate another 12 percent, and two percent of the state's remaining power is generated by wind sources.



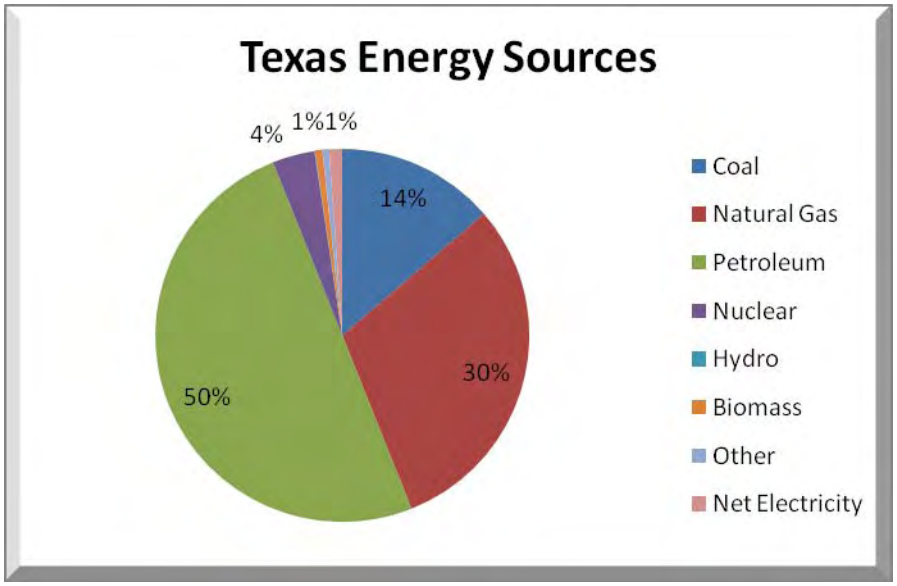
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): Half of Texas's energy is consumed by the state's industrial arenas, with a quarter going to transportation and the remaining quarter split evenly by the residential and commercial sectors.



Source: Energy Information Administration, SED 2006

Energy Consumption (by source): Texas derives half its energy from petroleum, 30 percent from natural gas and about 15 percent from coal.



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandate; local government initiatives)

State Energy Conservation Office

Within the executive branch, the State Energy Conservation Office aids Texas in making the most of the state's domestic energy and promoting cost effective clean energy technologies.

Texas Emissions Reduction Audits Program

Provided preliminary energy assessment reports, technical assistance and energy management workshops/training for local governments and municipalities as affected by the Texas Emissions Reduction Senate Bill 5 mandate to identify and facilitate energy conservation measures within their facilities.

Texas Energy Partnership

Assists certain counties and cities to implement all cost-effective energy-efficiency measures, establish a goal to reduce electricity consumption by five percent each year for six years and report efforts and progress annually to the State Energy Conservation Office.

Energy Education Curriculum Program

Promotes energy conservation and efficiency through education for Texas teachers. The program has conducted workshops for over 2,500 teachers reaching an estimated 375,000 students.

State Agencies/Higher Education Program

Ensures that new facilities are designed and built with energy efficiency and water conservation in mind. Projects include administration and maintenance of the Energy and Water Conservation Design Standard for new state buildings and major renovation projects. Other initiatives include development of statewide employee energy awareness through workshops on how energy efficiency and employee behavior can reduce energy use.

Energy Management Services

A comprehensive energy management program designed to significantly reduce energy and utility expenditures in state-owned facilities. Institutions of higher education, state university systems and local governments are eligible to participate in the program.

Watt Watchers

Helps school districts save energy and money by getting students involved. Students patrol the halls of the schools reducing energy waste by turning off lights and leaving tickets for empty classrooms with the lights on. If every teacher in Texas remembered to turn out the lights during two unoccupied hours each day, it would save Texans $14 million dollars each year. This program also helps encourage students to maintain and support energy conservation.

High School District Energy Council
In high schools, the Watt Watchers program is known as the Energy Council. The High School District Energy Council organizes students to assist the district energy manager in promoting energy efficiency awareness in schools. Students from each high school district form a committee or council led by the energy manager. The Council identifies and implements projects that help the district realize its goals of energy efficiency.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

LoanSTAR Revolving Loan Program
Loans to Save Taxes and Resources (STAR) use a revolving loan mechanism which allows continuity indefinitely. This program encourages development of energy efficiency programs.

Green Building Requirements
City and municipal projects must meet green building standards, with the goal of reducing electricity consumption by five percent per year for six years beginning in 2007.

Texas Agricultural Technical Assistance Program
Overseen by the Texas Comptroller of Public Accounts, State Energy Conservation Office, the program provides agricultural producers of Texas with technical assistance to make cost-effective, energy efficient choices.

Statewide Lighting Program
Eight Texas utilities launched a statewide Energy Star residential lighting program. The efforts of the utilities will help save $97.5 million in energy costs over the next 7-10 years according to U.S. EPA.

Texas Energy Efficiency Rule
In 2008, the Public Utility Commission of Texas has broadened the energy efficiency rule to include combined heat and power smaller than 10 megawatts. The decision expands House Bill 369 to promote energy efficiency, to provide near-term reductions in consumption and demand and to avoid a power crisis.

ENERGY STAR Tax Holiday
Exempts sales and use tax on purchases of specific items with ENERGY STAR rating.

Schools/Local Government Energy Program
Provides assistance from the State Energy Conservation Office to help schools and other units of local government set up and maintain energy-efficient programs. Texas schools now employ the computer power management software that puts monitors to "sleep" when not in use. Over 136,000 school computers now use this software, saving 42 million kWh and reducing energy costs by $3 million annually.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas, waste to energy)

Renewable Portfolio Standard

In 2005, Governor Rick Perry signed legislation increasing the amount of renewable generation required in the state. The law requires that 5,880 MW of new renewable generation be built in the state by 2015 and sets a cumulative target of installing 10,000 MW of renewable generation capacity by 2025.

Alternative Fuels Program

Demonstrates the positive environmental impact, technical feasibility and energy efficiency of domestically-produced alternative fuels. The program is designed to assist state agencies, school districts, local government and private fleets to operate more of their fleets on alternative fuels.

Biomass Incentive Grants

Establishes an agriculture, biomass and landfill diversion incentive program at the Texas Department of Agriculture; and distributes incentive grants to encourage electric energy generation with certain types of biomass materials, including qualified agricultural biomass, storm-generated biomass debris, forest wood waste and urban wood waste.

Texas Leader in Wind Power Generation

The American Wind Energy Association's annual ranking of wind power leadership continues to show Texas leading the states in terms of both total installed wind power capacity and the amount of new wind power capacity. In fact, the Sweetwater, Texas, wind plant more than doubled in capacity to 585 megawatts, pushing it from fifth to second place in the size rankings, while the state's Buffalo Gap wind facility expanded to 353 megawatts, placing it in fifth place for size. The recently completed 364-megawatt Capricorn Ridge wind facility, also in Texas, landed in fourth place, while last year's 401-megawatt Peetz Table Wind Energy Center in Colorado is the only non-Texas wind plant in the top five.

Tax Codes Related to Renewable Energy Systems

A franchise tax exemption extended to manufacturers, sellers or installers of solar energy devices. Also, the state allows for a corporate deduction from the state's franchise tax for renewable energy sources. Business owners can deduct the total cost of the system from the company's income. The state also offers a 100 percent property tax exemption on the appraised value of an on-site solar, wind or biomass power generating device.

Distributed Generation

(includes incentives, special back-up supply rates, standardized interconnection standards)

Interconnection Rules

Rules apply to electrical generating facilities (consisting of one or more on-site distributed-generation units) located at a customer's point of delivery, with a maximum capacity of 10 megawatts (MW). The total capacity of a facility's individual on-site distributed generation units may exceed 10 MW. However, no more than 10 MW of capacity will be interconnected at any point in time at the point of common coupling.

Clean Coal

(includes clean coal technologies, carbon sequestration, carbon offset programs, low carbon fuel programs, coal to gas)

Southeast Regional Carbon Sequestration Partnership (SECARB)

The University of Texas Bureau of Economic Geology has been a leading research partner in SECARB since its inception in 2002. SECARB is one of seven regional partnerships funded through U.S. Department of Energy's National Energy Technology Laboratory (NETL) devoted to the development and deployment of viable carbon sequestration technologies. SECARB is a diverse partnership managed through the Southern States Energy Board (SSEB).

Advanced Clean Energy Projects

Creates regulatory and financial incentives to promote "advanced clean energy projects" in Texas. These projects are limited to certain technologies able to meet an air emissions profile that the federal government has targeted for the year 2020. Feedstocks covered by the bill include coal, biomass, petroleum coke, solid waste and fuel cells using hydrogen derived from such fuels. Although generally limited to power generation projects, the incentives will also apply to coal-to liquids projects provided those projects co-generate their own electricity.

Clean Coal Technology Foundation of Texas

Supports the work of the Governor's Clean Coal Technology Council of Texas both with a mission to promote the use and development of new technologies that will encourage the continued improvement in air emissions from Texas power producers. The Foundation compiles state and federal data on air emissions, develops annual reports and regularly hosts conferences designed to bring industry, academia and state leadership fostering collaborative efforts to encourage new technology.

Governor's Clean Coal Technology Council

Advises the Governor on the feasibility of developing clean coal technologies in Texas. Council members examine issues regarding clean coal technology, including ways to maintain reliable, low cost sources of electric power; to reduce emissions from existing coal-fired electric generation; and to increase the efficiency of coal fired electric generation.

Oil and Oil Shale

(includes new sources of supply; incentives)

Project STARR

During the last Texas legislative session, the state increased the budget for the Project STARR**.** In addition to reservoir characterization projects, Project STARR will now look at new venture studies where regional fairways for drilling exploration wells will be emphasized. Also, Project STARR will conduct studies to promote exploitation of unconventional resources such as hydrocarbons from shale, tight gas sands and low-pressure gas.

The project will also work in conjunction with CO_2 sequestration studies to promote profitable sequestration of CO_2 in oil fields through CO_2 enhanced oil recovery. Texas State Lands operators are invited to participate in Project STARR where they can obtain, without charge, expert technical advice in developing state lands oil and gas fields.

Enhanced Oil Recovery

Texas is the worldwide leader in CO_2 Enhanced Oil Recovery.

- There are currently 50 projects underway.
- West Texas EOR fields produce more than 100,000 barrels of oil per day.
- There is an estimated 31 billion barrels of recoverable oil using CO_2-EOR.
- The extensive CO_2 pipeline network carries one to four billion cubic feet of CO_2 per day.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply, incentives)

Natural Gas Infrastructure Technical Assistance

Technical assistance available to facilities distributing natural gas.

University Texas Bureau of Economic Geology

The Bureau conducts resource assessment studies on oil, natural gas and coal. The scale of analysis varies from international, national, regional, state, local, to a field/reservoir level. Diverse methodologies are utilized including play, volumetric, material balance, decline, Delphi, reserve growth, probability and field size analysis. State of the art tools are utilized such as Geographic Information Systems (GIS) as well as the most current production, risk and economic analysis software packages.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

New Nuclear Generation

- South Texas Project—2 new reactors, GE advanced boiling reactor design (ABWR), more than 1,350 MW each. NRG expects them to be operational by 2015.
- Comanche Peak—2 new reactors, Mitsubishi APWRs.
- Exelon—2 reactors on a Greenfield site south of Victoria, using GE's Economic Simplified Boiling Water Reactors.
- Amarillo Power—2 Unistar U.S. evolutionary power reactors in the Texas Panhandle.

Texas Incentives Related to Nuclear Energy

- Exempts manufacturing equipment used to generate electricity from sales tax.
- Allows local taxing authorities to grant property tax value limitations for nuclear power plants.
- Allows local taxing authorities to defer commencement of the property tax value limitation period for up to ten years.

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

Wind Power Transmission Project

A $4.93 billion wind power transmission project for a planned web of transmission lines that will carry electricity from remote western parts of the state to major population centers like Dallas, Houston, Austin and San Antonio. The lines can handle 18,500 megawatts of power, enough to power 3.7 million homes.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

University of Texas' Center for Energy and Environmental Resources (CEER)

Serves as the central liaison for energy and environmental research, education and public service at the University of Texas at Austin.

University of Texas Gulf Coast Carbon Center (GCCC)

The GCCC seeks to apply its technical and educational resources to implement geologic storage of anthropogenic carbon dioxide on an aggressive time scale with a focus in a region where large-scale reduction of atmospheric releases is needed and short term action is possible.

University Texas Bureau of Economic Geology

The Bureau conducts resource assessment studies on oil, natural gas, and coal. The scale of analysis varies from international, national, regional, state, local, to a field/reservoir level. Diverse methodologies are utilized including play, volumetric, material balance, decline, Delphi, reserve growth, probability and field size analysis. State of the art tools are utilized such as Geographic Information Systems (GIS) as well as the most current production, risk and economic analysis software packages.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Net Metering

Legislation passed in 2007 reinstated net metering for the first time since deregulation. It is expected to go into effect in 2009, allowing producers of small amounts of renewable energy to contribute back to the grid for a credit.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Department of Transportation Alternative Fuel Vehicles

The Texas Department of Transportation's on-road fleet uses alternative fuels. In fiscal year 2005, the fleet of 4,500 alternative fuel vehicles helped reduce gasoline consumption by 5 million gallons. The alternative fuel vehicles run on natural gas or propane and produce much less air pollution than gasoline-powered vehicles.

Ethanol and Biodiesel Blend Tax Exemption
Ethanol and biodiesel blend is exempt from state gas tax.

Low Speed Vehicle Access to Roadways
Low-speed vehicles may operate on roads with posted speeds of 35 miles per hour or less. This encourages the use of low or no emissions vehicles such as bicycles, mopeds, etc. in place of conventional vehicles.

Electric Vehicle Surcharge Exemption
Electric vehicles are exempt from the surcharge applied to conventionally powered vehicles.

Vehicle Rebates
Consumer rebates are available for the purchase of electric vehicles, natural gas vehicles and natural gas forklifts.

Low Income Driver Incentive Vouchers
Vouchers available to encourage the use and purchase of alternative fuel vehicles and alternative fuels by low income drivers.

Provision for Establishment of Hydrogen Program
Governor Rick Perry has authorized the Texas Department of Transportation to seek funding to acquire and operate hydrogen vehicles and establish and operate publicly-accessible hydrogen refueling stations.

Texas Clean School Bus Program
Designed to improve the health of school children and bus drivers by reducing emissions of diesel exhaust from school buses with strategies such as a voluntary idling limit.

Green Technology

(includes manufacturing applications, educational programs to enable green technology development)

Solar and Wind Energy Device Tax Exemption (Corporate)
Texas corporations engaged solely in the business of manufacturing, selling or installing solar energy devices are exempted from the franchise tax. The franchise tax is Texas's equivalent to a corporate tax; their primary elements are the same. There is no ceiling on this exemption, so it is a substantial incentive for solar manufacturers.

Terrabon Biomass Conversion Facility
Terrabon is focused on developing and deploying cutting-edge technologies for biomass conversion and water desalination. The facility will test the commercial feasibility of its MixAlco technology, which converts readily-available, low cost, non-food biomass into chemicals that can be processed into renewable gasoline fuels, ethanol and other industrial products. Unlike other renewable fuels processes that primarily make ethanol from food-based feedstock such as corn, Terrabon's process utilizes waste products such as municipal solid waste, sewage, forest residues and non-food crops.

Green Jobs

(includes training; incentives)

Texas Investment in Solar Power Company

Investment of $1 million in HelioVolt Corporation of Austin for the construction of manufacturing facility to test and produce thin-film solar power cells, which convert sunlight into electricity. The deal will create nearly 160 jobs and $62 million in capital investment.

Other Activities

Clean Cities

Texas is a member of the Department of Energy's Clean Cities program. The program partners with cities to create voluntary, locally based, government/industry partnerships to expand gasoline alternatives by accelerating the use of alternative fuel vehicles (AFVs) and by building local AFV refueling infrastructures. Members of the Clean Cities Network help each other by sharing local innovations, and addressing and relaying obstacles they encounter in developing alternative fuels programs. In 2005, SECO was awarded the Governmental Partner of the Year at the National Clean Cities Conference for its support of the Texas coalitions. Throughout the life of Clean Cities, Texas has consistently been awarded high national recognition for their innovative forward thinking approaches to introduce and implement the use of alternative fuels in Texas.

Adopt-A-School Bus

The Adopt-A-School Bus Program is a joint venture between the U.S. Environmental Protection Agency (EPA), the State Energy Conservation Office, the North Central Texas Council of Governments, the Clean Air Force of Central Texas and other community partners to improve air quality and reduce diesel exhaust emitted by school buses. SECO has funded four major cities to promote the initiatives of the Adopt-a-School Bus Program.

Colonias

Texas is home to more Colonias residents than any other state. Approximately 500,000 Texans live in 2,300 Colonia communities. The Colonias has the largest concentration of people living without basic services in the United States. SECO has a host of programs offering services to Colonias residents including:

School Lighting and Air Conditioning Grants
Wind Power for Schools
Energy Savings Training
Affordable Energy Star Homes for Texas Families
Affordable Housing Construction and Rehabilitation
Utility Resource Education Network- A Guide to Lower Utility Cost
Colonias Solar-Powered Water Purification Systems
SClean Energy Technology & Safety Lighting Demonstration Project
http://www.seco.cpa.state.tx.us/colonias.htm

State Contact Information

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Austin, Texas 78774-1440
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www.seco.cpa.state.tx.us

U.S. VIRGIN ISLANDS

STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Like many Caribbean Islands, the U.S. Virgin Islands is almost entirely dependent on crude oil imported from other countries for its electricity supply. The territory neither produces nor uses natural gas or nuclear power, and uses only a small amount of imported coal. While the Virgin Islands lacks most conventional energy sources, it has the potential to generate energy from renewable sources such as solar and wind. And under the leadership of Governor deJongh, the Virgin Islands is moving towards reducing its dependence on foreign oil while boosting renewable energy sources.

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Implementation of a Government Energy Demand Reduction Program

Discussions are underway with potential contractors who responded to a request for proposals issued by the Virgin Islands Energy Office seeking qualified consultants who are capable of providing professional services for the development and implementation of a long-term Energy Alliance Program for the Territory. The program would engage the services of Energy Service Companies (ESCOs) to finance energy efficiency and renewable energy projects for government facilities. The program is referred to as an "alliance" because, in addition to the typical government entities, it seeks to provide incentives for large commercial and light industrial businesses to participate in energy performance contracting as well. The ESCOs would be asked to support projects such as retrofitting air-conditioning systems, indoor and outdoor energy efficient lighting, solar water heating and photovoltaic net metered systems.

Utility Demand/Supply-Side Management

On the supply-side of our energy generation equation, the Administration has proactively met with potential power producers in an attempt to weigh renewable energy production options to meet current needs to diversify our electrical generation portfolio and for additional power capacity to meet future needs as well as to reduce electricity costs to ratepayers. The Virgin Islands Water and Power Authority is currently in negotiations with potential power providers proposing alternative technologies to include waste-to-energy, geothermal, ocean thermal energy conversion and solar. The Administration also has received funding from the U.S. Department of Energy, to conduct an inter-island grid interconnection study. Other supply-side management initiatives include:

- Development of a smart grid strategy for the Water and Power Authority;
- Conversion of gas turbines to dual fuel (natural gas); and
- Replacing current multi-effect desalination units with more energy efficient reverse osmosis units.

On the demand-side, the Water and Power Authority distributed 60,000 compact fluorescent lighting (CFLs) to utility customers in 2007-2008 and the Virgin Islands Energy Office processed 400 rebate applications for Energy Star appliances and renewable energy products by the end of the third quarter FY 2008. Additionally, the utility along with the Energy Office and a coalition of private and not-for-profit organizations have partnered to develop a solar water heater financing program with a long-range target of 95 percent penetration in the residential sector.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Building Energy Codes

The Territory is currently upgrading its 2003 International Energy Conservation Codes to a Tropical Energy Code that more aptly addresses commercial and residential buildings in a tropical climate zone.

Renewable Energy

(includes technologies; biomass; bio-energy; bio-fuels; solar; wind; landfill gas; waste to energy)

Green Power Initiative

Governor John deJongh joined Governor Joe Manchin as a partner in the American Energy Security Initiative and signed onto his mission to eliminate the Nation's dependence on foreign oil. He also signed onto Governor Tim Pawlenty's Securing a Clean Energy Future Compact and has committed to the energy efficiency options that sets a goal that per capita electricity consumption in 2025 will be equal to or less than 2005 levels, and surpasses the renewable energy option goal that at least 15 percent of electricity supply shall come from renewable energy.

At Governor deJongh's urging, a Request for Proposals by the local utility for alternative and/or renewable energy sources was issued in December 2007 and 18 companies were pre-qualified covering a vast range of technologies to include ocean thermal energy conversion (OTEC), solar, wind, waste to energy, biomass, coal, compressed natural gas, geothermal and an inter-islands connection cable between St. Croix and St. Thomas.

Currently, officials at the V.I. Water and Power Authority have taken a step further in reducing fuel oil costs to the Authority, whittling the 18 perspective alternative-power providers down to six. The goal is to find a company to sign a 20-year agreement to sell the territory power at a rate less than WAPA's projected costs of using traditional fuel oil. The territory needs about 26 megawatts of energy on St. Croix and 30 megawatts of energy on St. Thomas from these alternative and renewable-energy solutions to meet its goal of replacing 40 percent of its territory-wide normal daily peak power.

Wind Power Initiatives
Building on the Energy Office's efforts to produce comprehensive wind resource maps for the Territory, Governor deJongh delivered opening remarks and participated in a wind energy workshop held on St. Thomas on January 31, 2008. This workshop was conducted in partnership with the U.S. Department of Energy's Wind Powering America, National Renewable Energy Laboratory, Sandia National Laboratory, National Energy Technology Laboratory and the Energy Foundation of Curacao. The workshop was instrumental in discussions to promulgate rules and regulations for residential and utility scale wind permits and the revision of an existing Wind and Solar System Law.

Renewable Portfolio Standards
In a recent bill entitled the Virgin Islands Renewable and Alternative Energy Act of 2008, Governor deJongh recommended language that will require the local utility to have at least 30 percent of the territory-wide generating capacity be derived from renewable energy technology by 2025 with incremental goals along the way.

Distributed Generation
(includes incentives; special back-up supply rates; standardized interconnection standards)

The Energy Office and the local utility are set to offer testimony to the Public Service Commission on modifications to improve the net metering program effectiveness. Items of particular concern are increases to maximum installed capacity for residential, commercial and government participants and approval of a standard interconnection agreement. The local utility has developed plans that include the delivery of a turn-key distributed solar PV program. The utility in partnership with a PV provider will finance, install, own, operate, monitor and maintain photovoltaic power plants located within the territory. The program will consist of two parts expected to run in parallel: a program of on-site commercial generation totaling 25 MW of PV generation, and 15-MW of a larger direct substation or PV feeder plants.

Vehicle Fleet Conservation and Alternative Fuels Programs
(includes infrastructure; anti-idling programs; fleet mileage standards)

Improving the Efficiency of the State Fleet
The Administration has initiated a program with the selected vendor who supplies the Government fleet to embark on a pilot program to determine the feasibility of incorporating gasoline hybrid vehicles at fleet prices. This initiative will include the development of an economically viable strategy for transitioning the government vehicular fleet to "best in class" energy efficient vehicles as part of a broader fuel reduction program. The Energy Office in collaboration with the Division of Environmental Protection has partnered to conduct a feasibility study on the potential and sustenance of a biodiesel program in the Territory. One proposal to perform a waste stream analysis of used cooking oil is currently under evaluation.

Additionally, a request for technical assistance to design an ethanol fueling station for use in flex fuel vehicles within the government fleet was forwarded to Executive Manager of Integrated Deployment at the National Renewable Energy Laboratory.

Other Activities

Development of a Comprehensive Energy Strategy for the USVI
A partnership created under the governor's leadership comprised of representatives from the Southern States Energy Board (SSEB), U. S. Department of Energy (USDOE) National Energy Technology Laboratory (NETL) and National Renewable Energy Laboratory (NREL) assisted in developing a robust and flexible Comprehensive Energy Strategy. The goals of the energy strategy include increasing the standard of living of the citizens of the Territory by assuring the long-term availability of affordable, secure and clean supplies of energy and to become a Caribbean and worldwide showcase for the development and use of renewable energy.

Climate Change/Global Warming Education
The Governor's Energy Office joined with the Water and Power Authority in March 2007 to promote awareness of potential problems related to global warming. That partnership was initiated with a slide show presentation and continued with free screening of Oscar award winning documentary– *An Inconvenient Truth* -- at several different venues, allowing an estimated 400 people to see it. The Energy Office has followed that up with many presentations to students about global warming and also to community organizations such as the Rotary Clubs on St. Thomas and St. John and a realtor's association meeting, and the moderation of discussions about global warming on V.I. PBS 's Channel 12 program *Graffiti Street*.

The University of the Virgin Islands hosted a Climate Change Symposium on February 6th, 2009 in which the Governor, key Cabinet members and policy advisors received a special briefing by the Caribbean Climate Change Center. The outcome of the symposium has led to the initiation of climate change adaptation planning in the Virgin Islands. The presenters also used the Barbados model as an example of how solar water heating can aggressively penetrate regional markets. As a result, Governor deJongh has challenged the Virgin Islands Economic Development Authority to pursue a marketing campaign to lure solar water heater manufactures to the Territory.

State Contact Information

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VIRGINIA

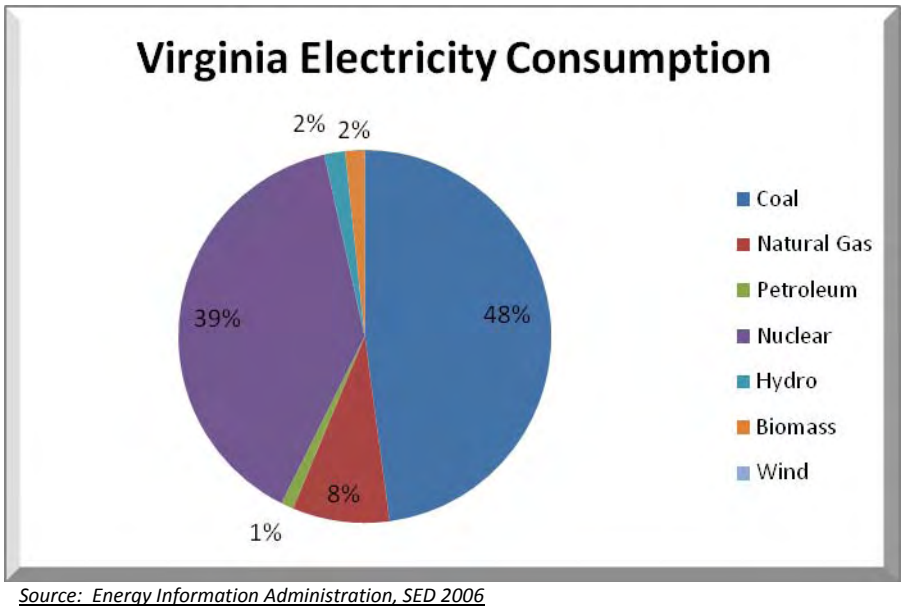
STATE ENERGY DATA

(Source: Energy Information Administration, State Profiles.)

Virginia produces approximately five percent of the coal mined east of the Mississippi river. It exports coal to states throughout the Nation, but also imports coal, primarily from West Virginia and Kentucky. Coal-fired power plants typically account for about one-half of the state's electricity generation. Virginia also uses nuclear power to supply approximately one-third of the state's electricity. Natural gas- and petroleum-fired power plants provide for much of the rest. Biomass and hydro contribute approximately four percent to the state's power production.

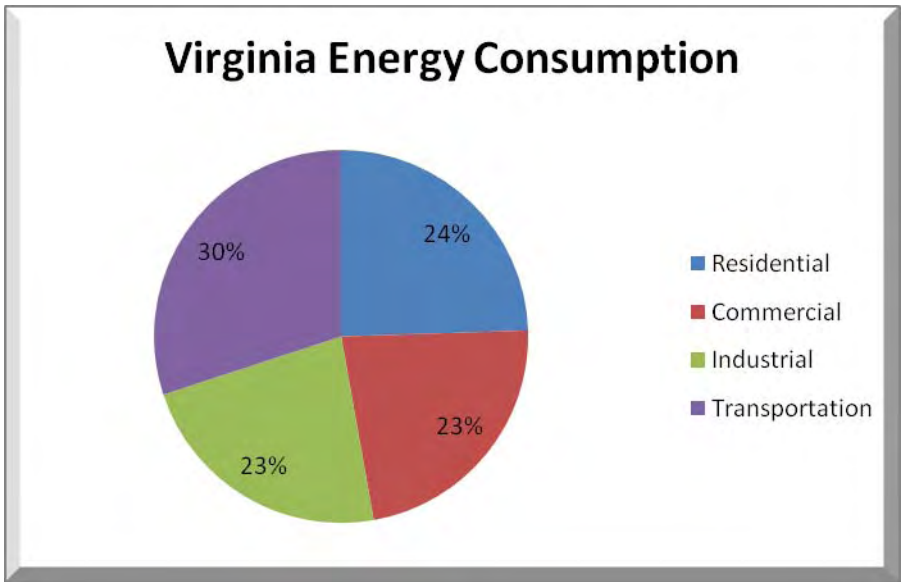
Virginia's energy demand is distributed among the sectors of the economy, with transportation leading the others by a small margin. Four percent of the electricity generation is derived from hydro and biomass. Coal, natural gas and nuclear are the primary energy sources consumed in the state. However, biomass accounts for four percent and hydro is one percent. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in Virginia.

Electricity Consumption (by source): Just under half of Virginia's electricity is generated by coal power plants, with nuclear power accounting for another large portion (39%). Natural gas offers eight percent of the state's electricity, with hydroelectric, biomass, and petroleum sources accounting for another five percent.



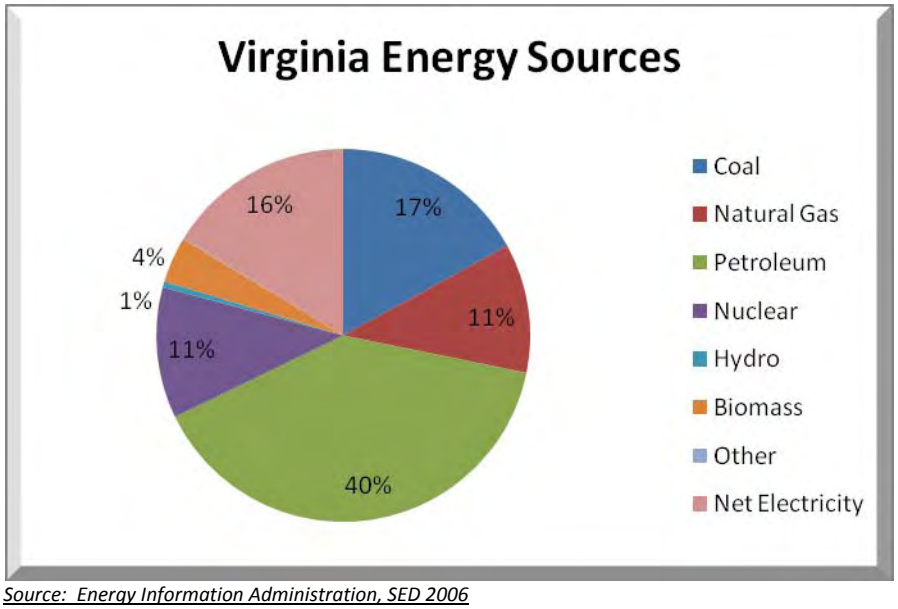
Source: Energy Information Administration, SED 2006

Energy Consumption (by sector): Nearly a third of Virginia's energy is consumed in the transportation sector, with just under a quarter of its energy going to each of the other three sectors (residential, commercial, industrial).



Source: Energy Information Administration, SED 2006

Energy Consumption (by source): Virginia derives a substantial amount of its energy from petroleum sources. The rest of its energy originates in coal (17%) and net electricity (16%), as well as natural gas (11%), nuclear sources (11%) and biomass (4%).



Source: Energy Information Administration, SED 2006

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

State Energy Efficiency Programs

The Department of Mines, Minerals and Energy (DMME) works to expand sustainable energy practices and behavior. The agency focuses on increasing energy conservation practices and improving the energy efficiency of commercial, institutional and residential buildings across the state; growing sustainable energy industries and infrastructure; supporting development of new and innovative energy technologies; advancing partnerships that enable energy and economic development opportunities; and providing energy education and outreach to help Virginians make informed energy choices. The Department's Division of Energy serves as the State Energy Office for the U.S. Department of Energy's Energy Efficiency and Renewable Energy's programs.

American Recovery and Reinvestment Act

Virginia is investing $15 million in ARRA funding to provide financial support for energy auditing (must meet Building Performance Institute protocols) and investments in energy efficiency improvements in residential and commercial sectors.

Decoupling

Virginia authorized natural gas utility decoupling in 2008. Natural gas utilities must include energy efficiency activities and actions to assist low and fixed-income customers reduce natural gas use as part of their decoupling plans. Virginia Natural Gas has an approved plan. Columbia Gas of Virginia has applied for its decoupling plan.

Virginia authorized, in 2009 legislation, investor-owned electric utilities to recover prudent costs of energy efficiency programs, receive a return on investment for these capital and operating costs and recovery of revenue from lost sales due to measurable and verifiable energy efficiency improvements under their programs. Dominion Virginia Power has filed plans to implement a portfolio of energy efficiency programs.

Energy Star

Energy Conservation Awareness Week was held the first full week in October. Virginia's third ENERGY STAR Sales Tax Holiday will take place October 9-12, 2009. State support for the sales tax holiday includes education outreach initiatives with appliance retailers and electric and natural gas utilities, and manufacturers to educate their respective customers about the holiday; and coordinating with local press on an advertising campaign promoting the sales tax holiday to encourage Virginia residents to become more energy efficient. Virginia also is an Energy Star partner.

Farm Energy Audit Program

The Department of Mines, Minerals and Energy (DMME), in collaboration with James Madison University and the Shenandoah Resource Conservation & Development (RC&D) Council offers to poultry, dairy and greenhouse growers farm audits and training, along with support in securing USDA Rural Development funds.

Consumer Energy Education
In 2008, the State Corporation Commission was charged by the General Assembly with developing a consumer education plan to overcome consumer market barriers and make consumers confident in making energy-efficient improvements. Roll-out of the first segment of the multi-phase plan starts in July 2009. The plan will include mass marketing, web-based information and use of community-based partners to deliver energy efficiency messages to specialized audiences.

Energy Efficiency Partnership of Greater Washington
Virginia Tech, Hannon Armstrong, Pepco Energy Services, Arlington County, GVA Advantis, the Bennett Group, the National Building Museum and Meridian International Center and Leo A. Daly are providing educational awareness actions and leadership to expand institutional and commercial building actions in the greater Washington DC area.

The Virginia Energy Savers Handbook
DMME published the fourth edition of its consumer guide to saving energy, money, and the environment, which is available via the Internet, hard copy and CDs. Over 4,000 printed and CD copies of this free handbook have been distributed to the citizens of the Commonwealth this year. The Handbook continues to be one of the top sites visited on the Department of Mines, Minerals and Energy website.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

Lead by Example
Governor Tim Kaine issued Executive Order 82 in June 2009 to expand sustainable energy and environmental practices in state government. This expands on requirements set under Executive Order 48 issued in 2007. The Executive Orders, among other actions, set a goal for state agencies to reduce costs of conventional energy by 25 percent by 2012, based on a 2006 baseline, require new construction to meet energy efficiency and LEED silver or Green Globes two globe standards, require only purchases of Energy Star appliances and equipment, encourage enactment of environmental management programs at all state agencies and a green government competition among agencies.

Energy Operational Review
In 2007 the Governor initiated an operational review of energy in Commonwealth facilities. This effort addressed how Commonwealth agencies could meet the energy savings requirements of Executive Order 48 (now expanded by Executive Order 82). As a result of that report, the Commonwealth formed the Virginia Energy Management Program (VEMP) to address statewide energy issues for Commonwealth agencies. See http://www.dmme.state.va.us/divisionenergy.shtml. Additionally, the Commonwealth is aggregating agency and institution purchases of natural gas and heating oil using centrally employed purchasing specialists and has implemented electric demand curtailment actions under the PJM Interconnection demand curtailment program. Through these efforts, the Commonwealth is on target to reach the Executive Order energy-savings goal.

Performance Contracting
Virginia has over $175 million of performance contracts in place on state facilities. There are approximately $30 million additional performance contracts in the pipeline. The Commonwealth also is evaluating a proposed public-private partnership to expand the performance contracting beyond traditional efficiency to address renewable power generation on state facilities.

Greening State Capitols Project
In 2008 Virginia participated in the National Governors Association's *Greening State Capitols* public-private partnership. Wal-Mart sent engineering experts to perform energy audits in three state capitol buildings in Richmond. The audits included estimates of any suggested capital expenditure and recommended technologies that give the state a return on investment within five years. In addition to recommending efficiency improvements, the audit provided estimates of the carbon dioxide emissions reductions that could result from increasing the energy efficiency of the state buildings.

Property Tax Assessment for Energy Efficient Buildings
Virginia has enacted legislation that would allow local jurisdictions to assess the property tax of energy efficient buildings, green roofs and solar systems at reduced property tax rates. Under this law, eligible energy-efficient buildings, green roofs or solar systems may be considered a separate class of property for local taxation purposes. Accordingly, the governing body of any county, city or town may, by ordinance, allow a special lower tax rate for this class of property.

Virginia Rebuild America and Building America Programs
The Virginia Sustainable Building Network (VSBN) administers the VA Rebuild America and Building America programs. VSBN facilitates annual conferences on Greening Virginia Universities; High Performance Schools in Virginia; Green Jobs; and many other local educational offerings. VSBN has also partnered with the Commonwealth in a multi-state Home Performance with Energy Star program, offering BPI (Building Performance Institute) home energy auditor training in Virginia.

Go Green Virginia
The Virginia Municipal League, the Virginia Association of Counties, and the Virginia School Boards Association have created the Go Green Virginia initiative, recognizing that communities need to take innovative steps to reduce energy usage and promote sustainability. The initiative has several components that will continue to unfold in 2009 and 2010, including a series of regional forums held across the state, giving outstanding opportunities for participants to learn about important trends in reducing energy consumption and promoting sustainability and a Go Green Virginia Best Practices Green Book, giving cities, counties and towns opportunities to share with other local governments descriptions of their most innovative practices, projects and policies. Member local governments are also urged to participate in a friendly competition known as the Green Government Challenge. The "Challenge" is designed to encourage implementation of specific environmental policies and practical actions that not only reduce carbon emissions, but can also save local governments money.

Virginia Green
The Virginia Tourism Corporation and the Virginia Department of Environmental Quality certify green lodging, restaurant, and meeting facilities to reduce the impacts of the tourism industry and showcase environmental friendly travel organizations and facilities.

City and County Climate Change Initiatives
Nine Virginia mayors have signed on to the U.S. Conference of Mayors, Cool Cities Climate Protection Agreement. Five counties have signed on to the National Association of Counties Cool Counties agreement. Numerous Virginia cities and counties have undertaken greenhouse gas emission inventories and are implementing climate action strategies.

Codes and Standards
Virginia updates its Uniform Statewide Building Code on a three-year cycle following the enactment of the model codes by the International Code Commission. Codes are enforced by localities statewide.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Renewable Portfolio Standards
In 2007, Governor Tim Kaine signed Senate Bill 1416, which established a renewable portfolio goal for Virginia's investor-owned electric utilities. The standard was increased in 2009 with a goal that 15 percent of base year sales are to be from renewable sources by 2025. Investor-owned electric utilities are eligible to receive an across the board 50 basis point boost to authorized return on equity if they meet the RPS goals. Appalachian Power has had its RPS plan approved by the Virginia State Corporation Commission. Dominion Virginia Power is developing its plan for expected filing later in 2009. These utilities, as well as the Old Dominion Electric Cooperative have made new investments in renewable projects, particularly wind, as a result of the RPS.

Biodiesel Production Tax Credit
This program will provide individuals or corporations producing biodiesel or green diesel with a tax credit of $0.01/gallon up to $5,000 each year for three years, to encourage increased production statewide.

Biofuels Production Fund and Grant Incentive Program
This program provides production incentives for locating plants in Virginia. Producers are eligible to receive a grant for each gallon of biofuels produced and sold, with a minimum production of 2 million gallons per year. The grant is equal to 12.5 cents for each gallon derived from cellulosic or algae sources, and 10 cents for each gallon derived from conventional sources.

Clean Special Vehicle Tax Credit
Virginia provides a $700 per job tax credit for three years for employers creating new jobs involved in the manufacture of clean special vehicles, components, conversion kits or hydrogen fuel components.

American Recovery and Reinvestment Act
Virginia is investing $38 million in ARRA funding to provide financial support for solar photovoltaic, solar thermal, and small wind projects in the Commonwealth. This is broken into $15 million for residential, commercial and industrial projects at $2,000 per watt for solar photovoltaic, $1,500 per watt equivalent for solar thermal and $1,000 per watt for small wind. Approximately $13 million will support installations on state facilities, and $10 million will support installations on local government and public school facilities.

Virginia will also invest $10 million in ARRA funding to support development of waste-to-energy and biomass-to-energy projects in the Commonwealth.

Wind Energy

Virginia possesses attractive wind energy resources offshore and in several onshore areas of the state. The Commonwealth developed a Virginia Wind Resource Map and a wind site assessment tool to assist wind power developers and local planners assess potential sites for wind turbines. The site-assessment tool uses multiple GIS layers and analysis of the site to measure the potential against an ideal site.

The Commonwealth approved its first utility scale wind plant in Highland County. A number of wind developers are developing other projects in the state. For example, Dominion Virginia Power and BP Wind Energy North America Inc. are evaluating wind energy projects in Tazewell County, Va. and Wise County, Va. Other projects are being developed along the Virginia-West Virginia border in the general vicinity of existing West Virginia wind farms and along Virginia's coastal areas. Numerous Virginia localities are developing wind ordinances to provide for use of small-scale wind systems in their cities and counties.

DMME and James Madison University established the Virginia Wind Energy Collaborative (VWEC), to promote the responsible development and use of wind energy. VWEC activities include educating citizens and county decision makers about the benefits wind power can bring to communities, as well as the possible impacts and how these can be avoided. More information on VWEC's activities is available at www.windpowerva.org.

The Virginia State-Based Anemometer Loan Program (SBALP) is designed to empower landowners by generating their interest in wind energy through the borrowing of meteorological towers and encouraging wind development. SBALP has installed instrumentation and towers at 33 sites across the Commonwealth. Plans moving forward include the acquisition of another two, 50-meter towers and to specifically target locations with a higher likelihood for commercial wind development.

There are a number of other one-off renewable projects such as at the Gereau Center for Applied Technology and Career Exploration in Rocky Mount, Virginia. The Center has several renewable energy systems including a wind turbine, solar photovoltaic panels that power a greenhouse/aquaculture lab, solar hot water for the school cafeteria and several remote solar lighting and crosswalk signs. This project is part of their larger plans for the construction of their Center for Energy and Environmental Design. The Gereau Center is unique in that every middle school student in the county attends the school and receives experiential training in several possible career areas. With the growing interest in "green jobs," students will come away with an appreciation and real-world understanding of renewable energy and other sustainability issues.

Offshore wind power is also actively being explored in Virginia, and significant wind resources have been identified in the area off our coastline. DMME, the Virginia Coastal Energy Research Consortium, and other relevant state agencies are working with the federal Minerals Management Service, the agency responsible for offshore energy development, to recommend options for offshore energy production, including wind power.

Virginia was a founding member of the Governors' Wind Energy Coalition in 2008.

Ethanol and Biodiesel

Virginia has its first commercial ethanol plant under construction. This 65 million gallon per year plant will primarily use locally grown barley as feedstock, lessening the need for corn-based ethanol in Virginia. The barley, using a seed developed for Virginia's climate by Virginia Tech and Virginia State University, will be grown as a winter cover crop, both providing feedstock to the plant and reductions in non-point-source water pollution from farms lacking winter cover crops.

Virginia is home to five commercial scale biodiesel producers, with a total production capacity of approximately 20 million gallons per year. The plants use waste greases, soy oil and canola oil as primary feedstocks.

Virginia is a member of the Governor's Biofuels Coalition.

Waste Solutions Stakeholders Group

The Waste Solutions Forum: Animal Agriculture and Environmental Solutions for the Shenandoah Valley is a collaboration of poultry and dairy farmers, university researchers, state and federal government analysts and scientists from the Chesapeake Bay Foundation. Its goal is to finds solutions to the excess animal wastes that result from farming operations in the Shenandoah Valley. One current activity is a transportable pyrolysis demonstration project, to convert 100,000 tons of poultry litter per year to bio-oil, synthetic gas and liquid fertilizer; to implement enhanced nutrient reduction technologies on poultry farms and small dairies; to increase markets for manure and organic resources by creating a 3-year position for a full-time organic by-products marketer; to demonstrate the value of manure and poultry litter-based compost soil amendments and mulches as alternatives to standard disturbed land revegetation practices in collaboration with the Virginia Department of Transportation; and to conduct educational programming to enhance understanding of innovative nutrient removal and bioenergy generation techniques and build community interest in implementing advanced technologies in the Shenandoah Valley.

Energy Crop Cultivation

Virginia State University (VSU) is conducting canola cultivation experiments and converting canola oil into biodiesel. With support from DMME, VSU has secured mobile crushing units, storage tanks and related equipment to educate and demonstrate to farmers the benefits of growing canola. The Conservation Management Institute (CMI) at Virginia Tech has been working on a biomass initiative to promote the adoption of a sustainable, renewable, domestic energy source of energy for electricity and transportation fuels, using native warm season grasses as an energy feedstock. Currently efforts to promote the cultivation of mixed strands of grasses by Virginia farmers, increase productivity and more variability to match site characteristics and provide better wildlife habitat. Demonstration plantings and test burns are being conducted at state facilities to discover optimal grass varieties, particle sizes, feed systems, boiler temperatures, stack tests, etc., for conversion to biofuels. Virginia Tech researchers are also researching growing hybrid trees and warm season grasses on reclaimed mined land.

Landfill Gas

Approximately two-thirds of Virginia's landfills have landfill gas based energy generation systems in operation. Some produce electricity, while others deliver the gas to end users for process heat.

Algae to Energy
Virginia has commissioned its first algae to energy farm. The algae is being grown as either an input to biodiesel production or as a solid renewable fuel that could take the place of coal or woody materials in utility or commercial boiler plants.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

Interconnection Standards
The Virginia State Corporation Commission issued new interconnection standards in June 2009 that ensure transmission and distribution safety and reliability while preventing barriers to new distributed generation technologies.

Virginia enacted legislation in 2009 to require electric utilities to provide back-up supply rates to cogeneration facilities within their service territories. The legislation establishes the terms that the rates are to be calculated.

Clean Coal

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Carbon Sequestration (Southeast Regional Carbon Sequestration Partnership)
Virginia Tech, as part of the Southeast Regional Carbon Sequestration Partnership (SECARB), is leading research and development on sequestering carbon in unmineable coal seams. The project participants have started field testing in the southwest Virginia coalfields, recently completing the first successful injection of carbon dioxide in unminable coal seams through a well in Russell County, Virginia. This work is being undertaken.

Virginia Tech Center for Coal and Energy Research has been a lead research partner in SECARB since its inception in 2002. SECARB is one of seven regional partnerships funded through U.S. Department of Energy's National Energy Technology Laboratory (NETL) devoted to the development and deployment of viable carbon sequestration technologies. SECARB is a diverse partnership managed through the Southern States Energy Board (SSEB).

Clean Coal Power Generation
A reclaimed surface coal mine in Wise County is serving as the site for a new coal-fired power plant being built by Dominion Virginia Power called the Virginia City Hybrid Energy Center. It is projected to be operational by 2012, with an estimated capacity of 585 megawatts. It will generate tax revenue of $3.5 - $4 million per year, and will create approximately 1,000 construction jobs and 75-100 permanent jobs at the plant. The plant is being built to be ready for carbon capture. It is located near the carbon sequestration testing being done through the SECARB.

Virginia's investor-owned utilities are eligible to receive a 200 basis point boost in utility returns for investment in carbon-capture compatible clean coal generation plants. This is part of a larger incentive provided to electric generation technologies that reduce greenhouse gas emissions.

Natural Gas and Liquefied Natural Gas

(includes new sources of supply; incentives)

Coalbed Methane

Virginia became a leading producer of coalbed methane gas after addressing how to manage proceeds from coalbed methane production when there are conflicting claims to ownership of the gas. The Virginia Gas and Oil Board holds proceeds in escrow until the ownership rights are determined through a court or by voluntary agreement. Production of natural gas has grown nearly by a factor of six since 1990 when coalbed methane production began in Virginia.

Virginia offers a one cent per million BTU tax credit for production of coal bed methane.

Oil and Oil Shale

(includes new sources of supply; incentives)

Virginia produces oil and petroleum products in Lee and Wise Counties, but in-state production accounts for only a very small portion of the state's consumption. Oil production is primarily a byproduct of natural gas extraction efforts.

Virginia's one oil refinery, located at Yorktown, has a production capacity of 63,650 barrels/day.

Nuclear Energy

(includes new reactor designs; federal loan guarantees; new plant licensing success stories; public acceptance and/or outreach; economic benefit studies; plant security in the post 9/11 environment)

Investment in Nuclear Power Generation

Virginia has two large commercial nuclear power plants, North Anna in Louisa County and Surry in Surry County. They supply approximately 35 percent of power generated in Virginia.

Virginia's investor-owned utilities are eligible to receive a 200 basis point boost in utility returns for investment in nuclear power generation plants. This is part of a larger incentive provided to electric generation technologies that reduce greenhouse gas emissions.

New Plant Licensing

Dominion Virginia Power has received its site permit and has submitted an application for a Combined Construction and Operating License for a new 1,500 megawatt nuclear reactor, designated as North Anna Unit 3. Construction on Unit 3 could begin by 2010, provided that the Nuclear Regulatory Commission and regulatory bodies in Virginia approve the project. Dominion has signed contracts to purchase plant components which require a long lead time and require special manufacturing facilities. If the project goes forward, Dominion expects to begin commercial operation in 2017.

Nuclear Technologies

Virginia is home to Areva and Babcock and Wilcox, companies providing fuel rod assembly and nuclear plant servicing to commercial and military nuclear facilities around the world. Areva and Newport News

Shipbuilding are developing a new business to construct nuclear plant components in Newport News Virginia. This will be the only facility in the United States capable of fabricating such plant components.

Babcock and Wilcox recently announced a new mPower modular, scalable nuclear plant technology that will allow smaller, lower-cost nuclear plants to be constructed. The reactor, with a five-year refueling cycle, can be as small as 125 MW.

The Central Virginia Community College, Virginia Commonwealth University, the University of Virginia, and Virginia Tech are developing new training programs for nuclear plant technicians, and restarting nuclear engineering programs to produce newly trained workers for the industry.

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

Electric Transmission

PJM's Regional Transmission Expansion Plan has recommended upgrades to address mid-Atlantic regional transmission needs. Three long-distance projects would serve or pass through Virginia, including the TrAIL and PATH from southwestern Pennsylvania and West Virginia to the Northern Virginia/District of Columbia/Maryland market and the MAPP line from Possum Point Virginia north. Allegheny Power and Dominion received approval to construct and operate the 240-mile, 500-kilovolt TrAIL line. The PATH line is pending before utility regulators in affected states. The states utilities are also investing in other improvements such as shorter intra-state lines, transformer improvements to increase transmission system capacity and reliability.

Smart Grid

Dominion Virginia Power is investing approximately $20 million in SmartGrid Charlottesville. The pilot will install over 46,000 smart meters and other smart grid technology making Charlottesville and Albemarle County fully served by a smart grid. This will serve as a springboard for piloting smart grid technology in two areas of the state. They project when installed system wide, that the improvements in efficiency of the transmission and distribution system is expected to result in about a four percent savings in electrical use for a typical residential customer, provide web based access for customer access to electrical use data, and be a platform for demonstration of new electric control technologies.

Natural Gas Transmission Pipelines

Virginia Natural Gas is constructing a third pipeline crossing of the Port of Hampton Roads to increase natural gas distribution to South Hampton Roads. This area has experienced supply disruptions during periods of high demand.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Energy Research and Development Funding

The Virginia Tobacco Commission has funded $40 million R&D infrastructure improvements at five locations across Virginia. The locations will specialize in research addressing clean coal, carbon capture and storage, biofuels, energy modeling and nuclear technologies. The Commission will, in 2009, invest

Virginia

approximately $53 million in R&D operations at these and other locations across Southside and Southwest Virginia.

Virginia is home to the Thomas Jefferson Laboratory specializing in high-energy physics research and development, as well as the NASA Langley Research Center and Dahlgreen Naval Surface Warfare Center, each of which undertakes energy research and development.

Virginia's public and private universities host a wide range of energy research and development. For example, Virginia Tech hosts a broad range of R&D related to renewable and other advanced energy technologies. Old Dominion University hosts research on algae to biofuels and offshore wind technologies. The University of Virginia researchers specialize in energy efficiency and fuel cells among other technologies. James Madison University has developed specialized expertise in wind and biofuels technologies. Virginia State University has researchers specializing in new semiconductor materials and new energy crop development. Numerous research centers, such as the Virginia Coastal Energy Research Consortium, Center for Coal and Energy Research, the Center for Advanced Engineering and Research and the Initiative for Coastal Climate Change Research complete specialized research in Virginia's universities.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Decoupling

Virginia authorized natural gas utility decoupling in 2008. Natural gas utilities must include energy efficiency activities and actions to assist low and fixed-income customers reduce natural gas use as part of their decoupling plans. Virginia Natural Gas has an approved plan. Columbia Gas of Virginia has applied for its decoupling plan.

Virginia authorized, in 2009 legislation, investor-owned electric utilities to recover prudent costs of energy efficiency programs, receive a return on investment for these capital and operating costs and recovery of revenue from lost sales due to measurable and verifiable energy efficiency improvements under their programs. Dominion Virginia Power has filed plans to implement a portfolio of energy efficiency programs.

Net Metering

Virginia allows net metering of excess electricity generated from renewable sources, such as solar, wind, and hydropower. Eligible systems can be up to 10 kilowatts for residential systems and 500 kilowatts for non-residential installations. Virginia's net metering program allows for third-party ownership of systems to increase financing opportunities for net-metered systems. A recent change to the net metering law requires utilities to pay customers for any excess renewable-generated electricity they may produce over the course of the year.

Load Control Programs

Virginia's electric cooperatives have offered load control programs to customers for many years, resulting in reduced peak loads on the cooperative systems.

Interconnection
Virginia has revised its interconnection standards to make it easier for distributed generation projects to safely connect to the electrical grid. Legislation in 2009 also will provide easier access to public rights of way for transmission and steam lines serving cogeneration plants.

Vehicle Fleet Conservation and Alternative Fuels Programs

(includes infrastructure; anti-idling programs; fleet mileage standards)

Alternative Fuel Job Creation Tax Credit
Virginia provides a $700 per job tax credit for three years that is provided for employers creating new jobs involved in the manufacture of clean special vehicles, components, conversion kits or hydrogen fuel components.

Alternative Fuels / Fuel Vehicle Tax Reduction
Virginia's local governments may provide hybrid and electric vehicles as a separate classification of property for personal property taxes and provide a preferential tax credit for such vehicles. Loudoun County is an example of a county providing this tax benefit.

Low-Speed Vehicle Access to Roadways
Low speed vehicles are permitted to operate on roads with speed limits of 35mph or less. This encourages the use of low or no emissions vehicles such as bicycles, mopeds, etc. in place of conventional vehicles.

Alternative Fuel Vehicle (AFV) and Fueling Infrastructure Loans
The state provides low interest government loans to increase infrastructure capable of supporting alternative fuel vehicles.

High Occupancy Vehicle (HOV) Lane Exemption
Virginia allows vehicles using alternative fuels to use the HOV lanes regardless of how many passengers are in the vehicle in order to promote the use of alternative fuels in transportation.

Mass Transit and Car Pooling

(includes increased funding; new and expanded systems; incentives)

Mass Transit and Rail Funding
Virginia is rebalancing our transit funding system by putting more money into rail and public transit at a time when overall transportation funding has diminished. The FY2008 to 2013 Six Year Improvement Program was $11 billion including $8.7 billion for highways and $2.3 billion for transit and rail projects. The recently adopted FY10-15 Six Year Improvement Program is $7.4 billion with $5.4 billion for highways, a reduction of $3.3 billion and $2 billion for transit and rail projects, a $300 million reduction mostly related to the transfer of the Dulles Rail project to the Metropolitan Washington Airports Authority.

Rapid Transit Projects

The Hampton Roads Transit (HRT), a regional system providing a variety of bus, commuter, and vanpool services within and between the cities of Norfolk, Virginia Beach, Chesapeake, Portsmouth, Hampton, Newport News and Suffolk, is in the final design and early construction stages of a light rail transit system, The Tide. The Tide is a $288 million project proposed to extend 7.4 miles from the Eastern Virginia Medical Center through downtown Norfolk along the I-264 corridor to Newtown Road within the city of Norfolk. Eleven stations will be constructed along the alignment with four park and ride locations. The system is projected to carry up to 12,000 riders daily. HRT is funding the capital costs of the project in partnership with the Federal Transit Administration, Commonwealth of Virginia and City of Norfolk. HRT expects the project to be operational in 2010.

The Dulles Metrorail Project, a new 23-mile transit line connecting Northern Virginia to the rest of the region, is moving into its final phase. On January 7, 2009, U.S. Transportation Secretary Mary Peters gave the final federal approval to phase one of the project, sending it to Congress for a 60-day review. The project, as proposed, will be built in two phases. The first phase will extend Metro from the Orange Line between East and West Falls Church stations to Wiehle Avenue and includes four stations in Tysons Corner. The expected completion date for Phase 1 is July 31, 2013. Phase 2 would extend Metro through Reston and Herndon to Dulles Airport and Route 772 in Loudoun County. The Metropolitan Washington Airports Authority is committed to bringing rail to the Dulles Corridor, and is continuing to work with all of its partners to ensure the timely completion of this project.

In Northern Virginia, the Virginia Department of Transportation is working with partners to develop a regional network of HOT Lanes (high occupancy toll lanes) in Northern Virginia. These are facilities where the high occupancy vehicles and transit vehicles may use free of charge but single occupancy or two person vehicles must pay a toll to use. Tolls for the HOT lanes will change according to traffic conditions to regulate demand for the lanes and keep them congestion free - even during peak hours. These facilities allow for reliable transit service on congested highway corridors – improving the attractiveness and efficiency of transit service. Construction is underway on the I-495 HOT Lanes project which will add four new lanes to the most congested corridor in Virginia. Negotiations are currently underway for the I-95/I-395 HOT Lanes project and are expected to be complete in fall of 2009. The long term vision for the Dulles Toll Road includes the use of congestion pricing along the corridor.

In Richmond, the Greater Richmond Transit Company (GRTC) announced it is planning to develop a hybrid bus rapid-transit system, running east-west through the center of the city. Estimated to cost from $40 million to $120 million, it is described as a train without the rails, with design and construction taking three to five years.

Transportation Demand Management Program

Virginia's Transportation Demand Management (TDM) programs help manage travel demand to make our systems more efficient. It's core mission is to move more people in fewer vehicles, move travel time out of the peak period, or, in the case of teleworking, eliminate travel time altogether. TDM focuses on people-oriented transportation choices and shared ride transportation solutions. TDM is accomplished through a unique partnership between the Department of Rail and Public Transportation (DRPT), eighteen local commuter assistance programs, Metropolitan Planning Organizations, various Transportation Management Associations (TMA's) and the Virginia Department of Transportation (VDOT). Heavy emphasis is placed on business-to-business promotion to assist employers in starting or expanding employee transportation programs. DRPT also provides technical and financial support to Virginia

local commuter assistance agencies through grant programs, research, training, and marketing assistance.

Van Pooling
The Virginia Vanpool Assistance Program, sponsored by the Virginia Department of Rail and Public Transportation, provides temporary funding for vanpools having trouble filling all of their seats. There are two different programs, the VanStart Program, which funds empty seats during the critical start-up phase of new vanpools; and the VanSave Program, for existing vanpools that are experiencing problems in their passenger levels due to the loss of riders.

Clean Cities Program
Virginia Clean Cities (VCC) promotes non-polluting, non-petroleum alternative fuels and vehicles to help increase energy security; improve air quality and public health; and to develop economic opportunities in the Commonwealth of Virginia. The Virginia Clean Cities' programs create markets for alternative fuel vehicles (AFVs) and hybrids, provides infrastructure for alternate fuel blends and provides for diesel retrofits for cleaner emissions. It promotes idle reduction and alternative fueling infrastructure. The program works with public and private fleets

Transportation and Land Use

(includes initiatives to improve the efficiency of the transportation system and better balance transportation and land use)

Street Networks
The Commonwealth Transportation Board adopted new standards for the acceptance of streets into the state maintenance system. These standards will ensure that streets provide adequate public benefit to justify their perpetual public maintenance. The standards require that local streets in new developments connect with adjacent development and will help reduce congestion on major roadways as well as help reduce vehicle miles traveled by providing direct and alternative routes for citizens.

Walkable Development
In 2007 the Virginia General Assembly directed high growth localities to designate "urban development areas" on their comprehensive plans by 2011. These districts will be areas of reasonably compact development that incorporate the principles of new urbanism including mix of uses and walkable streets. Urban development areas will help promote more efficient transit service and make walking an attractive transportation alternative to driving. The Commonwealth will provide technical assistance to local governments to designate urban development areas and make corresponding modifications to their zoning and subdivision ordinances through consultants hired by the state.

Green Jobs

(includes training; incentives)

There are several Green Jobs activities underway in the Commonwealth of Virginia. Interest in these is shared by those in all levels of government, as well as the private sector. Topics range from job creation, to job training, to curricula development, to economic development. Green energy efforts include:

- ***Renew Virginia***. Virginia Governor Tim Kaine announced the Renew Virginia Initiative on December 11, 2008, involving legislative and executive actions focused on energy conservation and efficiency and environmental protection. As part of this initiative, the Governor has tasked the Secretary of Commerce and Trade to create an interagency task force to work with the Virginia Economic Development Partnership to build a case for renewable energy-related businesses and to develop a marketing plan to attract green jobs. Under the Renew Virginia initiative, 2009 is Governor Kaine's Year of Energy and Environment.
- **Virginia Community College System.** The VCCS is responsible for training under Virginia's Workforce Investment Act. Numerous of Virginia's community colleges offer green jobs related training and classes. Examples include New River Community College offering wind, PV and hybrid systems training; Central Virginia Community College, in collaboration with the City of Lynchburg, is developing secondary school and college jobs training on nuclear and other energy technologies; and the Community College Workforce Alliance, which is the workforce development partnership between John Tyler and J. Sargeant Reynolds Community Colleges, offers a session covering the National Electrical Code (NEC) requirements for designing and installing PV systems. Other community colleges offer two green interior design academic courses: Green Design for Interior Designers and Green Design for Commercial Interiors, and HVAC training. Green Education and Sustainability courses are available at several of Virginia's community colleges through JER Online. They include: Home Energy Fundamentals, How to Choose a Renewable Energy Installer and Achieving Solar.
- **James Madison University** has a wind energy technology education program; also, in collaboration with DMME, conducted field farm energy auditor training in January 2009.
- The **Virginia Energy Workforce Consortium** was created in August 2007 as a private-public partnership through which representatives from industry, education and government can work together to develop a pipeline of skilled workers for the energy sector.
- The **New River Center for Energy Research and Training** trains over 1,500 people per year on home weatherization techniques, home performance testing and heating and cooling equipment diagnostics and repair, targeted to Weatherization Assistance.
- The **Virginia Sustainable Building Network (VSBN)**, in collaboration with the VA DMME's Division of Energy, is facilitating a pilot residential energy auditor training and certification program in the state, initially focused in Northern Virginia. Subsequent training will be offered in four other locales. VSBN is also offering a Green Jobs Fair for late February 2010 in Northern Virginia. Further, VSBN is working with several groups and agencies, including ASTRACOR, a training organization for immigrant populations, to conduct additional auditor training programs. They are also working with the offices of employment for Arlington and Alexandria to determine possible placement for trained people.

American Recovery and Reinvestment Act

Virginia is investing $10 million in ARRA funding to provide financial support for new energy businesses and to commercialize new energy technologies. These investments are to support development of long-term green job opportunities in Virginia.

Other Activities

State Energy Plan
Virginia established in 2006 broad energy policy in a new energy title of the Code of Virginia. The 2006 legislation also required development of an energy plan. The Virginia Energy Plan, published in 2007, is a 10-year state energy plan outlining four broad goals and recommended actions. The goals include moving toward energy independence through reducing the growth rate of energy use by 40 percent through energy efficiency and increased by 20 percent production of in-state clean energy resources; expanding energy education; reducing greenhouse gas emissions by 30 percent by 2025, and capitalizing on economic development opportunities through expansion of energy research and development. The plan is to be updated in 2010 and every four years thereafter.

Governor's Energy Policy Advisory Council
Governor Tim Kaine created the Governor's Energy Policy Advisory Council and Senior Advisor for Energy Policy to provide for stronger leadership on energy issues. The Council reviews and monitors implementation of the Virginia Energy Plan and evaluates strategies for implementing these recommendations.

Governor's Commission on Climate Change
In 2007, Governor Tim Kaine created by executive order the Governor's Commission on Climate Change. The Commission looked at six areas: 1.) Strategies to reduce greenhouse gas emissions by 30 percent by 2025; 2.) Inventorying the amount of Virginia's greenhouse gas emissions, including projections through 2025; 3.) Evaluating expected impacts of climate change on Virginia's citizens, natural resources, and economy; 4.) Identifying climate change approaches being pursued by other states, regions, and the federal government; 5.) Identifying what Virginia needs to do to prepare for the likely consequences of climate change; and 6.) Identifying any actions that need to be taken to achieve these goals. The Commission's report, issued in December 2008, recommends numerous actions to address these areas. See http://www.deq.state.va.us/export/sites/default/info/documents/climate/CCC_Final_Report-Final_12152008.pdf. The Commonwealth has started implementing recommendations such as providing for utility company recovery of investments in energy efficiency, establishing a requirement for state-government biodiesel purchases and expanded investment in mass transit.

Climate Registry
Virginia participates in the Climate Registry, which aims to develop a common system for entities to report greenhouse gas emissions. The Registry serves as a tool to measure, track, verify and publicly report greenhouse gas emissions consistently and transparently between states. Voluntary, market-based and regulatory greenhouse gas emissions reporting programs are all supported under the Registry.

Virginia Utility Programs
According to utility Form 861 filings, the Virginia utility programs spent $9.5 million in 2006 on energy efficiency and conservation programs. Overall, these past and continuing energy efficiency investments have reduced Virginia 2006 electricity generation by 181,869 MWh or by .20 percent. These energy conservation efforts have reduced Virginia utility CO_2 emissions by 135-295,000 tons per year. (Virginia energy conservation programs reduced the amount of fossil fuel generation required to meet customer demand. These savings reduced emissions by between 0.5-1.1 tons CO_2/MWh.)

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WEST VIRGINIA

STATE ENERGY DATA

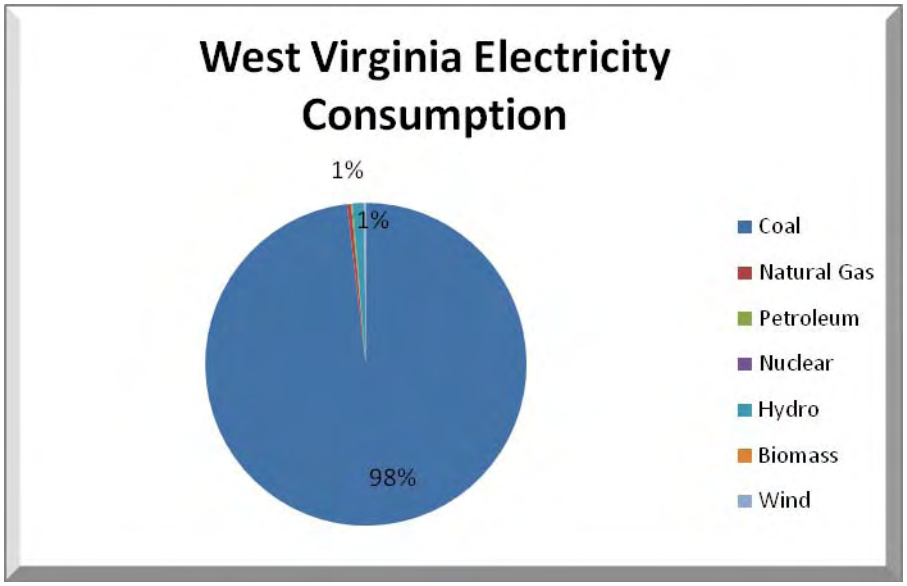
(Source: Energy Information Administration, State Profiles.)

West Virginia produces more coal than any state east of the Mississippi River, with total production second only to Wyoming. Numerous states throughout the country rely on the coal they receive from West Virginia for their electricity needs. The state is the top interstate electricity exporter in the Nation. West Virginia is moving to expand its development of renewable resources, which have the potential to produce more than 1,000 MW of electricity. The state is focusing on investments in wind generation and hydroelectric facilities, and it anticipates future investments in biomass projects.

Due to the state's vast coal resources, coal-fired power plants account for nearly all of West Virginia's electricity generation. The rest of West Virginia's electricity is derived from a number of hydroelectric facilities.

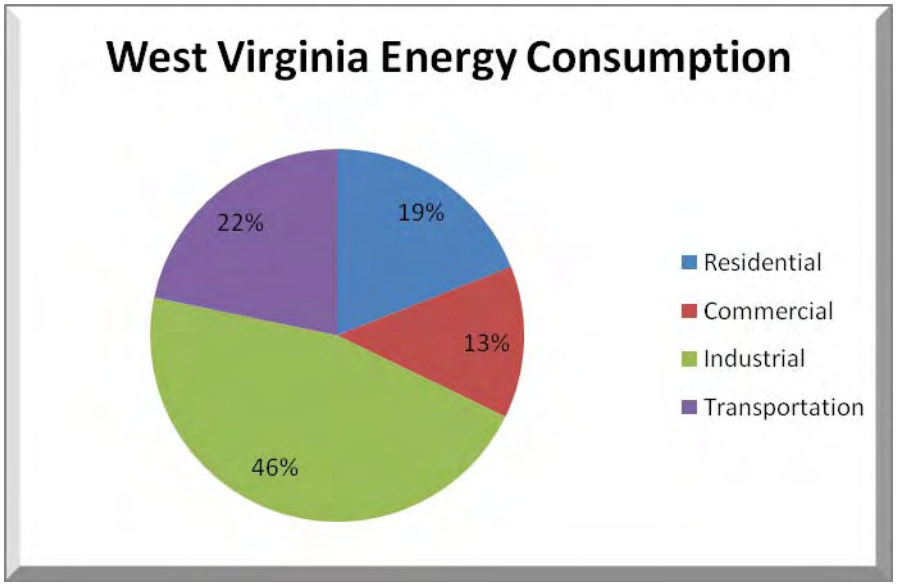
The industrial sector is West Virginia's leading consumer of energy accounting for 46 percent. The transportation and commercial sectors combined total 35 percent of the energy consumed. The graphs below depict the distribution of electricity generation, energy consumption by sector and energy consumption by source in West Virginia.

Electricity Consumption (by source): West Virginia's electricity mix is almost entirely coal, with the remaining one percent of electricity generation provided by hydropower.



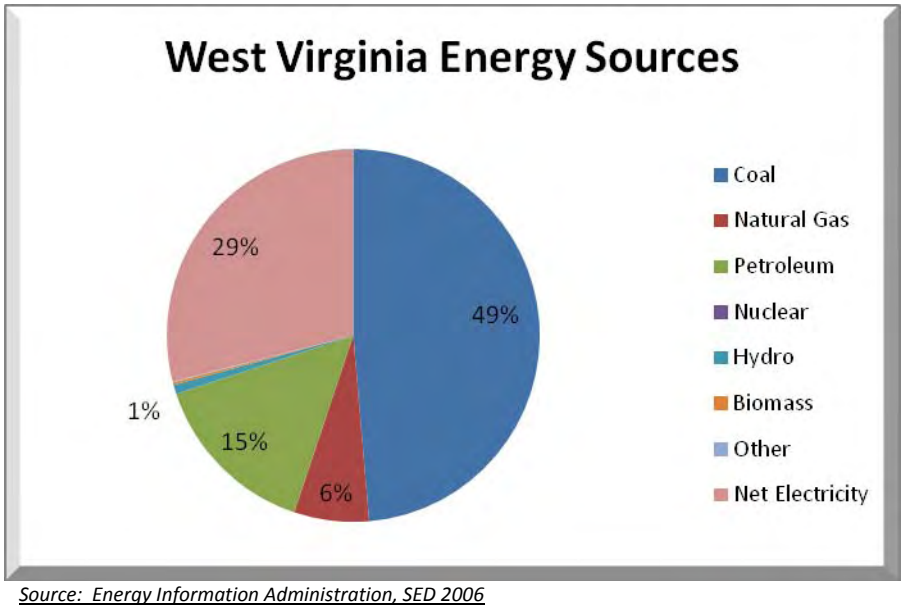
Source: Energy Information Administration, SED 2006

Electricity Consumption (by sector): West Virginia consumes 46 percent of its energy in the industrial sector, with remaining energy going to transportation 22 percent, residential 19 percent and commercial areas 13 percent.

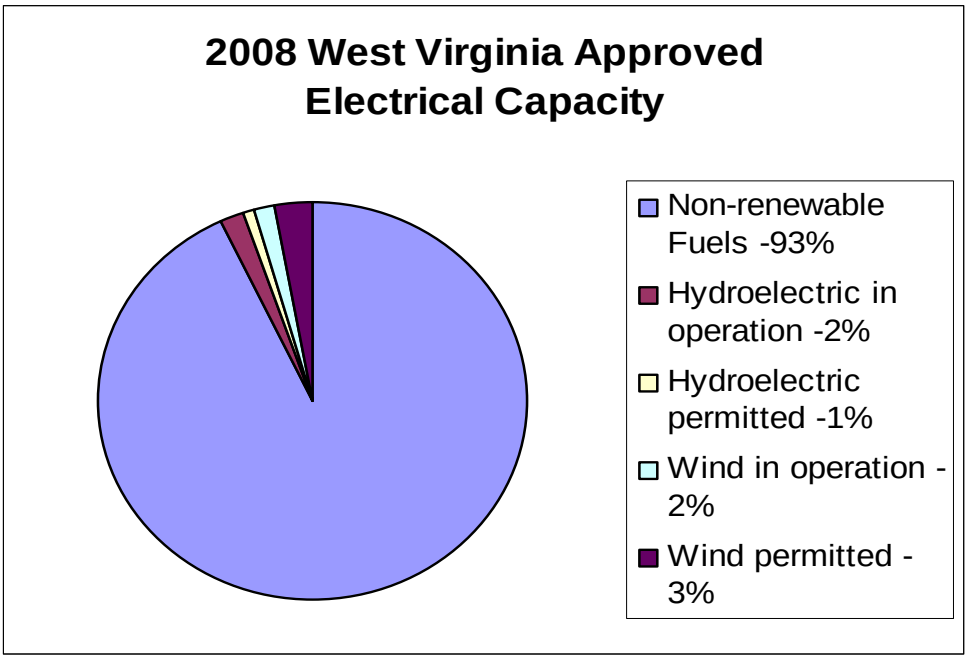


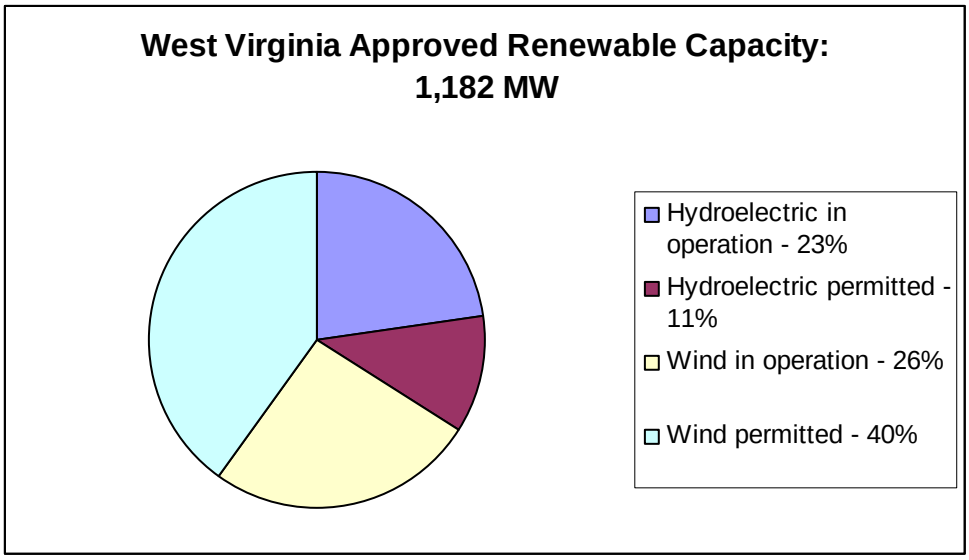
Source: Energy Information Administration, SED 2006

Electricity Consumption (by source): Half of West Virginia's energy comes from coal. Twenty-nine percent comes from net electricity, 15 percent from petroleum, and 6 percent from natural gas.



Source: Energy Information Administration, SED 2006





Source: West Virginia Energy Division

STATE INITIATIVES

Energy Conservation

(includes devices; standards; outreach and education programs; financial incentives; conservation practices as part of decoupling; legislative mandates; local government initiatives)

Saving Energy in Public Schools Program

This program is developing a systematic, two-part approach to reducing energy use in public schools. The Centers for Building Energy Use at West Virginia University and the West Virginia University Institute

of Technology provide senior engineering student teams to perform energy benchmarking at each school in a county using ENERGY STAR® Portfolio Manager. Student teams then conduct energy audits of selected schools identified by the school system superintendent and provide the results. Seven of West Virginia's 55 counties have participated in this program.

West Virginia ENERGY STAR® Program

The West Virginia Division of Energy promotes residential energy efficiency through its Website at www.energywv.org by providing an online home energy audit, energy saving tips and a store locator indicating where ENERGY STAR products are sold. The division assisted Fairmont State University in becoming an ENERGY STAR Partner in 2008, the first higher education facility in the state to become a partner. Since 2005 the division has assisted Fairmont State University, the West Virginia Department of Environmental Protection and Wyoming County Schools in certifying ENERGY STAR buildings. Wyoming County Schools has had six schools awarded this designation.

ENERGY STAR Sales Tax Holiday

Effective September 1-November 30, 2009, West Virginians will not have to pay the state's six percent sales and use tax on certain ENERGY STAR qualified products. Purchases qualify for the sales and use tax holiday if the purchase is for a product that:

- has been designated as an ENERGY STAR product by the U.S. Environmental Protection Agency and the U.S. Department of Energy
- costs $5,000 or less
- is for noncommercial, home or personal use.

Energy Efficiency

(includes buildings; Combined Heat and Power applications; technologies; low income home energy assistance; codes and standards; procurement and purchasing programs; demand response; "smart grid"; load management incentives; legislative mandates; local government initiatives)

State Energy Efficiency Goal

The *West Virginia Energy Opportunities Document*, presented to the Governor and Legislature in December 2007, is West Virginia's first comprehensive state energy plan. The plan promotes increased energy efficiency, traditional fossil energy forms and renewable energy to provide energy independence from foreign oil imports by the year 2030. The plan outlines opportunities to displace 1.3 billion gallons of foreign petroleum products used annually in West Virginia. The plan also provides a BTU analysis of energy efficiency, renewable energy and fossil energy opportunities. Three hearings were held to receive public comment.

Building Professionals Energy Training Program

The West Virginia Division of Energy conducts educational seminars annually on advanced building practices designed to save energy and money in the construction of commercial and residential buildings in West Virginia. More than 200 building professionals, including architects, engineers and code officials, have participated in the events.

2009 International Energy Code

Buildings are responsible for 40 percent of the Nation's energy use. Improving their efficiency reduces unnecessary expenditures as well as emissions associated with energy generation. The volatility of

energy prices also makes saving energy a financial necessity. Because incorporating energy efficiency as you build is more cost-effective than retrofitting, energy codes are a critical component of any state energy plan. In West Virginia, the Governor sponsored legislation during the 2009 session requiring the adoption of the 2009 International Energy Conservation Code as the minimum statewide energy code. This legislation was approved and signed into law. The West Virginia Division of Energy will work statewide with regional planning and development councils, cities and counties to facilitate the introduction of these new building energy standards. Energy codes must be seen as a tool to ensure quality building construction, save energy and reduce energy costs and not as a regulatory hurdle.

Lighting Grants Program

This matching grant program assists local schools, governments and nonprofit hospitals in updating their indoor lighting to more efficient technologies. Since 2005, 51 organizations have received lighting audits for 129 buildings for an annual savings of $473,566 with an average return on investment of under three years. Since 2005, 27 grants for lighting upgrades totaling approximately $381,000 were awarded.

Educational Facilities Energy Efficiency Activities

The West Virginia Division of Energy was responsible for the inclusion of energy performance contracts into the West Virginia Department of Education's handbook for planning school facilities. The Division's work also led to the adoption of ENERGY STAR schools as a goal for new school construction.

Renewable Energy

(includes technologies; biomass; bioenergy; biofuels; solar; wind; landfill gas; waste to energy)

Renewable Energy Development

West Virginia's extensive renewable energy resources have resulted in substantial new investment in wind and hydroelectric facilities. At 264 MW, the Ned Power project in Grant County is the largest wind farm in the East. The 66-MW Mountaineer Project in Tucker County was West Virginia's first wind farm. In addition to these 330 MW of existing wind generation capacity, another 461 MW has received regulatory approval and is under construction. Currently, 264 MW of hydroelectric power is operating in West Virginia with another 127 MW in the permit review phase. Assuming the permitted projects reach fruition, West Virginia will have more than 1,000 MW of renewable energy production, equal to 20 percent of the 5,000 MW of coal-based power consumed by West Virginians. Anticipated investments in wood-to-energy projects will also enhance the state's energy diversification.

Renewable Fuels

Biodiesel is a West Virginia success story. The state's county school systems have been successfully using biodiesel blends in school buses for several years. As of Summer 2009, 31 of the state's 55 county school systems are using biodiesel blends. Some of that biodiesel is supplied by West Virginia's first biodiesel production facility, AC&S of Nitro. Additionally, the fuel is sold at two public retail stations in the state's Eastern Panhandle. Two public retail stations sell E85 in the state's north-central region.

Distributed Generation

(includes incentives; special back-up supply rates; standardized interconnection standards)

Interconnection Standards

The West Virginia Public Service Commission has been requested to initiate hearings on interconnection standards.

Clean Coal Initiatives

(includes clean coal technologies; carbon sequestration; carbon offset programs; low carbon fuel programs; coal to gas)

Alternative and Renewable Energy Portfolio

As new electric generation technologies and resources enter the marketplace, West Virginia, a state with diverse energy resources, must capitalize on the full range of opportunities. Following the lead of many states, in 2009 West Virginia adopted a mandatory Alternative and Renewable Energy Portfolio, which was introduced by the Governor and adopted by the Legislature. The portfolio defines alternative energy as clean coal technologies that yield reduced carbon impacts including integrated gasification combined cycle plants, ultra-supercritical plants, pressurized fluidized-bed reactor systems and carbon sequestration at coal-fired power plants. It awards double credits for renewable energy projects including solar (thermal and photovoltaic), wind, biomass and hydroelectric. Utilities can earn triple credits when renewable energy projects are located on surface-mined land. Utility-based energy efficiency projects are also eligible technologies. By 2025, West Virginia's electric utilities must derive 25 percent of their instate sales from alternative and renewable energy resources. Interim goals are 10 percent by 2015 and 15 percent by 2020. The legislation also enhances West Virginia's net-metering provisions and interconnection standards.

Water Resources Evaluation

Evaluation of water resources needed for energy development has been conducted through the National Research Center for Coal and Energy at West Virginia University.

Promotion of Surface-Mined Sites

The Office of Coalfield Community Development promotes the use of mountain-top mined properties for energy development purposes.

Identify Advanced Coal Plant Sites

In cooperation with the West Virginia Geological and Economic Survey, the West Virginia Division of Energy is identifying potential locations for advanced coal plants.

Carbon Sequestration

In 2009, the West Virginia Department of Environmental Protection issued the state's first CO_2 sequestration permit for a carbon capture and sequestration demonstration at American Electric Power's Mountaineer Plant in Mason County. The project will involve the capture and sequestration of one percent of the CO_2 produced at the plant. AEP is investing more than $100 million in the project that will use chilled ammonia to separate CO_2 from the gaseous waste stream of a pulverized coal plant. The CO_2 will be injected into an 8,000-foot well that extends to the saline aquifer.

Legislation sponsored by the Governor and adopted during the 2009 legislative session created a Carbon Dioxide Sequestration Working Group, which will study regulatory, legal and scientific issues as well as develop a long-term strategy for the regulation of carbon dioxide sequestration in West Virginia.

Current sequestration work includes the development of a geospatial (GIS) framework and associated tools to evaluate value-added carbon capture and storage projects and the geological storage potential within West Virginia. An inventory was developed of potential value-added CCS sites including oil and gas fields with potential for enhanced oil recovery, and deep coal seams with the potential for enhanced coalbed methane recovery. In addition, while not value-added geologic storage sites, selected deep saline formations were evaluated due to their large potential storage volumes. Information on the project as well as an interactive Web-based evaluation tool is available at www.wvcarb.org. This work is co-sponsored by the National Research Center for Coal and Energy, West Virginia Division of Energy, West Virginia GIS Technical Center, West Virginia Geological and Economic Survey and West Virginia University.

West Virginia is a member of the Southeast Regional Carbon Sequestration Partnership (SECARB) as well as the Midwest Regional Carbon Sequestration Partnership (MRCSP). The goal of the regional partnerships is to develop the necessary framework and infrastructure, conduct field tests of carbon sequestration technologies and evaluate options and potential opportunities for carbon sequestration.

West Virginia is the second-most forested state in the lower forty-eight, a direct result of state forest management practices. Hardwood and pulp wood production and processing are important sectors of the state's economy and West Virginia forests provide outstanding recreational opportunities. As concerns over carbon emissions rise, West Virginia forests can be credited with yet another beneficial role: offsets. The U.S. Forest Service estimates that West Virginia's forest lands are responsible for a 17 percent uptake of the state's carbon emissions, removing equivalent carbon-based emissions from industrial plants, automobiles and electric utilities from the atmosphere.

Natural Gas and Liquefied Natural Gas

(include new sources of supply; incentives)

Marcellus Shale Mapping Project

The West Virginia Geologic and Economic Survey is mapping the Marcellus Shale strata in West Virginia for economic opportunities.

Pipeline Constraints

The West Virginia Division of Energy, in cooperation with the West Virginia Geologic and Economic Survey, is working to identify state natural gas pipeline constraints.

Energy Transmission and Distribution Infrastructure

(includes electrical grid construction and efficiency improvements; pipelines; distribution systems for alternative fuels)

TrAIL and PATH

Electric transmission infrastructure modernization actions are being carried out through advancing new north/south (Trans-Allegheny Interstate Line or TrAIL) and east/west high voltage (Potomac-Allegheny Transmission High Line or PATH).

Smart Grid

The West Virginia Division of Energy is participating in the first statewide Smart Grid study. The West Virginia Public Service Commission will be initiating Smart Grid hearings.

Advanced Energy and Energy Efficiency Research and Development

(includes university; SBIR; private; other R&D)

Industries of the Future – West Virginia (IOF-WV)

The IOF-WV program addresses energy efficiency in the state's industries including steel, aluminum, chemical/polymer, glass, metal-casting, wood products and mining. The West Virginia Division of Energy contracts with West Virginia University to provide industrial assessments to West Virginia industries through several programs. These include the Energy Assessment Center, Projects with Industry, Glass Industry Assessment Center and Wood Industry Assessment Center.

National Energy Technology Laboratory (NETL)

Morgantown, West Virginia, is home of the U.S. Department of Energy's National Energy Technology Laboratory, whose work focuses primarily on ensuring the supply of affordable fossil fuels. Carbon capture and sequestration and hydrogen fuel from coal technology are but two of the ongoing research areas at NETL. West Virginia University collaborates with the Institute for Advanced Energy Studies (IAES) on a number of fossil fuel-related projects.

Energy Regulatory Practices

(includes decoupling; net metering; rate structures; load control programs)

Net Metering

The West Virginia Public Service Commission (WVPSC) adopted net metering regulation for units up to 25kw. The WVPSC is expected to continue modification of these regulations by inclusion of industrial participation in net metering.

Mass Transit and Car Pooling

(includes increased funding; new and expanded systems; incentives)

Ride Share Program

The West Virginia Division of Energy provides a program that allows Capitol Complex commuters to search a database for carpooling partners. The database increased 40 percent in 2008 due to higher fuel costs.

Intelligent Transit Program
The Intelligent Transit Program is a public transit program providing commuter service between Charleston and Huntington, West Virginia. The program, a joint effort of the Tri-State Transit Authority and Kanawha Regional Transit Authority, began in January 2009.

Green Technology

(includes manufacturing applications, educational programs to enable green technology development)

MATRIC Green Technology Program
The Mid-Atlantic Technology Research and Innovation Center (MATRIC), a 501(c)3 organization, is working collaboratively with the chemical industry to advance green technology applications to help maintain the chemical industry presence in West Virginia.

Other Activities

American Energy Security Summit
Governor Joe Manchin III hosted a three-day summit ("American Energy Security" - April 16-18, 2007) to work with other Southern governors to identify and inventory the energy resources of each state.

Energy Summits
In 2007 and 2008, energy summits sponsored by the West Virginia Governor's Office, the West Virginia Department of Commerce and the Southern States Energy Board brought together energy experts at Stonewall Resort in Roanoke, West Virginia, to coalesce state and regional support for energy initiatives.

West Virginia Recycling Directory
The West Virginia Division of Energy maintains a print and web resource listing 500 West Virginia recyclers.

PM –2.5 Technical Assistance
The West Virginia Division of Energy provides technical assistance in advancing energy projects in PM-2.5 non-attainment regions via offsets.

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