

A Balanced Strategy for Meeting North Carolina's Growing Energy Needs

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Peering through the front window of a typical 1,600-square-foot North Carolina home in 1975, a person might have seen a family gathered in the shag-carpeted living room, huddled around its only TV (a 19-inch console) to watch *The CBS Evening News with Walter Cronkite* or *M*A*S*H* as a window-mounted air conditioner hummed in the background.

Two years after the first Arab oil embargo, the state's 5.5 million residents, like the rest of the country, were focused on energy conservation and rising gasoline prices. Yet signs of growth were visible in the new highways and schools being built and in the new sources of electricity under construction and planned.

Fast-forward to 2008 and take a peek inside the typical new home of today. It has grown by half, to more than 2,400 square feet, on average. The residents have twenty-four-hour news and entertainment via the Internet, which they access by computers in several rooms in the house or through the large-screen plasma TV in the living room. And from the kitchen to the bedrooms, electronics are in widespread use, making the lives of about nine million North Carolinians more enjoyable, convenient, and productive.

In only about three decades, the typical household served by Progress Energy Carolinas (formerly Carolina Power & Light) has increased its energy

consumption by 46 percent, from about 9,700 kilowatt-hours per year to more than 14,200.

All signs point to continued growth. The same attractive factors that brought many of the state's current residents to North Carolina are drawing tens of thousands of new families and businesses every year. By 2030, North Carolina is expected to surpass Michigan and Ohio to become the nation's seventh-largest state, with a population of more than twelve million. Moreover, new advanced electronics are becoming part of mainstream America every day.

Meanwhile, the world has become much more aware of global climate issues and the factors that affect climate change. In the United States, Americans recognize

the growing value of energy independence, as well as fuel and technology diversity.

Thus, North Carolinians find themselves at a crossroads, with new energy realities that they all must confront together.

As a utility, Progress Energy is committed to securing North Carolina's energy future by making sure that electricity remains available, reliable, and affordable and is produced in an environmentally sound manner. In partnership with the state and with communities, the company is moving forward with a balanced strategy for meeting future energy needs. The balance includes a strong commitment to energy efficiency; aggressive and cost-effective investments in renewable energy sources and emerging energy tech-

nologies; and construction and operation of state-of-the-art power plants.

The region cannot rely exclusively on one component or another. The balance is critical. Progress Energy has been very active on all three fronts.

Energy Efficiency

In May 2007, Progress Energy, which serves 1.4 million households and businesses, announced the doubling of its efficiency goal from 1,000 to 2,000 megawatts. The goal is ambitious—reducing electricity consumption in the company's service area by the equivalent of six combustion-turbine power plants. The company is proposing several new conservation and demand-side management programs to the North Carolina Utilities Commission this year, and it will evaluate the programs' effectiveness and participation rates continually to determine their viability in further reducing demand for electricity.

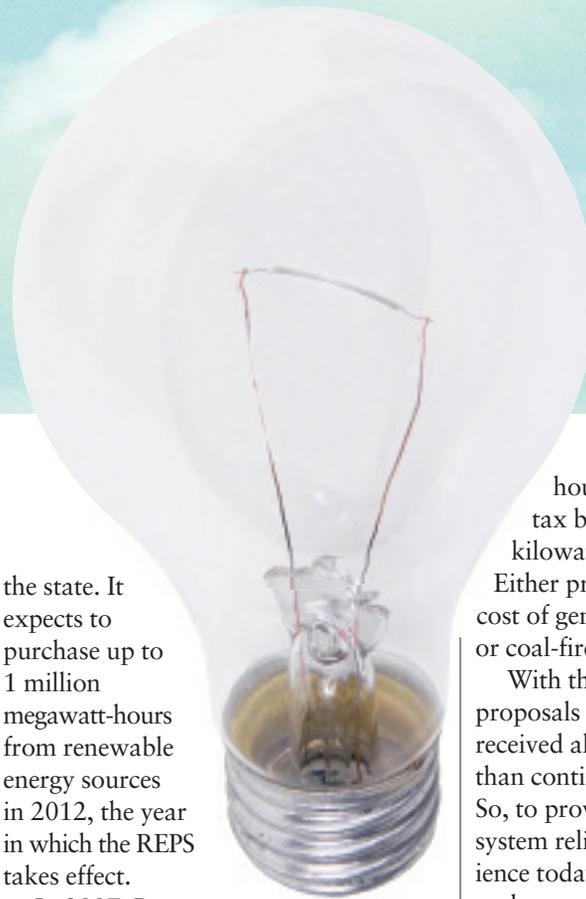
To advance the effort, Progress Energy has started a consumer education program, Save the Watts. Interest in the program has raised traffic on the company's energy-efficiency website almost 300 percent. Customers are looking for ways to save money and be more efficient.

In a related move, the company has announced a commitment not to propose any new coal plants during a two-year period of energy-efficiency evaluation.

In matters of efficiency, customers have the most critical role. Success calls for active participation on a large scale, and it requires not only understanding but also changes in energy use and behaviors. Many Progress Energy customers already participate in efficiency

In just thirty years, the typical household has increased its energy consumption by nearly one-half.

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programs. The company's goal is to develop additional programs that will work well with customers' lifestyles in 2008 and beyond.

As part of its requests for program approval from the Utilities Commission, and consistent with the renewable energy portfolio standard (REPS) recently enacted by the General Assembly, Progress Energy will seek appropriate incentives. The incentives will address the new energy realities that all North Carolinians are facing. Utilities make money by selling electricity. Efficiency programs result in reduced sales. Currently, there are no incentives to encourage utilities to invest in efficiency programs. This situation needs to change if Progress Energy is to implement a sustainable business model.

Progress Energy likes an incentive model that is based on sharing the savings. Under this model, the costs and the benefits of efficiency programs are evaluated together, and customers and the company share the benefits. The greater the energy savings, the greater the reward for customers and the company. This approach is transparent and allows the Utilities Commission to review the costs and the benefits each year. The company believes that the model will encourage a true partnership between Progress Energy and its customers to find the programs that really work and are sustainable.

Renewable Energy Sources

The second front in Progress Energy's strategy is to develop renewable energy sources. The company is working aggressively to implement the REPS in a manner that makes economic sense for

the state. It expects to purchase up to 1 million megawatt-hours from renewable energy sources in 2012, the year in which the REPS takes effect.

In 2007, Progress Energy issued a request for proposals for renewable energy. The proposals received thus far have largely confirmed the results of an independent study completed for the Utilities Commission last year. That study, conducted by LaCapra Associates, indicated that the state has limited renewable resources on which to draw.

Progress Energy received more than two dozen initial proposals from renewable energy providers and prospective projects, totaling more than 600 megawatts of potential capacity. The sources include the sun, biomass, and wind. The total is about half the size of a new nuclear plant. Technologies relying on the sun and wind depend on the sun shining and wind blowing, so they would operate only about 30 percent of the time, unlike a nuclear plant that can run 95 percent of the time or more.

Many of the proposals were incomplete, and several biomass-energy proposals appeared to depend on the same fuel supply. Thus, not all of them will be viable. Progress Energy is probing more deeply to determine what is truly achievable and at what cost.

Today these proposals also are very expensive—close to 25 cents per kilowatt-

hour for solar power, assuming a tax break, and 50 cents per kilowatt-hour without an incentive.

Either price is more than five times the cost of generating electricity in a nuclear or coal-fired power plant.

With the exception of biomass, the proposals that Progress Energy has received all involve intermittent (rather than continuous) generation of power. So, to provide the same level of electric-system reliability that customers experience today, renewable energy sources such as sun and wind would require utilities to maintain backup plants, resulting in a considerably higher overall cost for customers.

Possible New Nuclear Plants

Even if all 600-plus megawatts of renewable energy projects become viable, and even if customers achieve the additional 1,000 megawatts of energy efficiency in the next decade, Progress Energy's projections indicate that new power plants will be needed in 2018 and beyond. That is why it is critical to move forward on all three energy fronts, including the real possibility of new nuclear-power generation.

In February 2008, Progress Energy filed an application for a second reactor at the Harris Nuclear Plant in Wake County in order to preserve the opportunity to construct additional nuclear-power generating capacity if it is needed. The action does not commit the company to a new plant but helps ensure that this important option remains viable for meeting future energy needs.

Progress Energy's projections show a need for more "baseload power"—plants that run continuously to meet

the basic level of customer energy demands—in the next ten to twelve years. That might sound like a long time, but in utility terms, it is not. The regulatory process will take years, as will construction, so the company has to start planning now. Just as municipal and state governments cannot wait for gridlock to begin planning roads, schools, and other infrastructure, Progress Energy must plan now for the region's energy future.

Progress Energy has a state-mandated responsibility to meet the state's needs, and the company believes that nuclear energy must continue to be a key part of a diverse and reliable resource mix.

Nuclear energy is carbon-free and the safest, most economical way to generate large-scale energy for North Carolina, and it is the state's best option for new plants.



Conclusion

These are the new energy realities: The state is growing fast. Demand for electricity is growing fast. Tomorrow's homes will likely be bigger than today's, and the drawing-board electronic technologies of 2008 will be commonplace and widespread in a decade. North Carolina's cities are becoming larger, and the need for reliable, affordable, and environmentally sound energy will continue to increase.

Balancing these priorities and the many important perspectives represented in North Carolina is a big challenge. Progress Energy is committed to pursuing each of the critical components of its balanced energy strategy in partnership with customers and communities to ensure that when today's children and their children flip the switch in the decades ahead, the lights continue to come on.



Energy and the Environment: Resources for North Carolina Citizens and Leaders

For readers interested in contacting organizations referred to in this issue, or in exploring options for energy efficiency and environmental protection, the following sources have useful information.

This resource page also is available online at www.sog.unc.edu/popgov.

American Council for an Energy-Efficient Economy www.aceee.org/
See especially the report *State Energy Efficiency Scorecard for 2006*.

ICLEI—Local Governments for Sustainability www.iclei.org/
ICLEI was founded as the International Council for Local Environmental Initiatives. It now goes by the name above. North Carolina members are Carrboro, Chapel Hill, Durham, and Orange County.

NC GreenPower <http://ncgreenpower.org/>
This nonprofit organization works to improve the environment through voluntary, tax-deductible donations for renewable energy. Through their monthly electricity bills, participants contribute \$4 for every 100 kilowatt hours of electricity they use.

North Carolina Climate Action Plan Advisory Group www.ncclimatechange.us/

North Carolina Cool Cities <http://coolcities.us/>
Participants as of April 2008 are Asheville, Black Mountain, Boone, Brevard, Canton, Carrboro, Chapel Hill, Charlotte, Clyde, Concord, Durham, Flat Rock, Fletcher, Franklin, Gastonia, Greenville, Highlands, Hillsborough, Raleigh, Salisbury, Surf City, Wake Forest, Wilmington, Winston-Salem, and Woodfin.

North Carolina State Energy Office www.energync.net/
The website includes the 2005 State Energy Plan.

North Carolina Utilities Commission www.ncuc.commerce.state.nc.us/
This is the website of the regulator for the largest electricity generators.

State Government Operations www.ncprojectgreen.com/

U.S. Green Building Council www.usgbc.org/
From the main page, follow links to Resources, then Government Resources, then Tools for Governments and Schools.

Energy from Nonfossil Fuels

Energy Center, Appalachian State University www.energy.appstate.edu/

North Carolina Solar Center, North Carolina State University www.ncsc.ncsu.edu/

North Carolina Wind Energy Site, Appalachian State University www.wind.appstate.edu/

Major Investor-Owned Electric Utilities in North Carolina

Duke Energy www.duke-energy.com

Dominion North Carolina Power www.dom.com/about/companies/ncpower/index.jsp

Progress Energy www.progress-energy.com

Selected Studies of State and Local Government Energy and Environment Issues

Ashley, Jacqueline H. "From Commitment to Action: Lessons Learned from Local Government Sustainability Efforts." MPA Capstone Paper, UNC at Chapel Hill, April 2008.

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