

**DUKE ENERGY CAROLINAS, LLC
COMMENTS TO THE PURC ENERGY ADVISORY COUNCIL**

RECOMMENDATIONS FOR A SOUTH CAROLINA CLEAN ENERGY STANDARD LEGISLATION

- 1. Clean energy standard should be a voluntary goal**
- 2. Availability of renewable resources varies significantly across the country, therefore, goals should be based on an informed, state-specific renewable resource assessment and market potential evaluation**
 - Renewable resources vary considerably nationally
 - Resource availability significantly impacts feasibility and cost, as well as policy design
 - Renewable resource assessment and market potential evaluation tailored to South Carolina resource base is the essential starting point
- 3. A clean energy title should be used to enable and promote the development of energy efficiency and renewable and new nuclear resources**
 - “Clean energy” encompasses more than “renewable energy” and allows for additional flexibility for utilities
 - Clean energy goals can be met through a combination of energy efficiency savings, renewable energy, and new nuclear energy
- 4. A cost cap mechanism should be incorporated to protect customers from excessive rate increases related to renewable development and procurement**
 - Renewable energy resources remain premium cost resources
 - Reasonable limits are necessary to limit customer exposure to higher costs
- 5. The clean energy goal legislation should provide assurances of timely cost recovery for utilities and gradual increases in annual goal thresholds**
 - Annual review and rider proceedings provide opportunity for utilities to recover associated costs and for the Public Service Commission to oversee the status of the utility’s achievement of the clean energy goals
 - Goals must increase on a realistic timeline, thereby enabling technology maturation and synchronization with cost recovery mechanisms
- 6. The clean energy goal legislation should include reasonable provisions relating to qualifying resources**
 - Ability to utilize energy efficiency savings without limitation to meet the clean energy goals
 - Ability to utilize new nuclear resources without limitation to meet the clean energy goals
 - Broad definition of qualifying resources, especially woody biomass
 - Ability to procure Renewable Energy Certificates (RECs)* for prospective years’ compliance obligation, essentially allowing utilities to build a “bank” of RECs over a period of time
- 7. Both utilities and third-party developers should be incented to invest and participate in the voluntary clean energy goal program**
 - Investment tax credits for renewable projects
 - Return on equity incentives for utility achievement of clean energy goals

* 1 REC is = 1 MWh of electricity derived from a renewable energy source, thermal energy, or electricity avoided through efficiency measure

**Progress Energy Carolinas' Initial Comments to the PURC EAC
Regarding Renewable Energy**

The availability and costs of various types of renewable energy vary widely. While some forms (such as hydro and landfill methane gas generation) can be cost-competitive with conventional sources they are generally not available in sufficient quantities to replace more traditional forms of electric generation. Other forms of renewable energy (such as wind and solar) cost considerably more than energy from conventional sources thus causing electric prices to be higher than would otherwise be the case.

In addition, the characteristics of some renewable energy sources pose challenges for integration into the electric supply; i.e., they are non-dispatchable and intermittent. For example, solar only generates electricity when the sun is shining and wind only generates when the wind is blowing. Given their low capacity factors as compared to nuclear or coal plants, it takes three to five times as much solar and wind generation capacity to provide the same amount of energy as coal, natural gas or nuclear generation. Plus, additional generation capacity from other sources is necessary to meet demand for electricity when solar and wind are not available.

South Carolina already has a voluntary program to encourage the development of renewable energy. Palmetto Clean Energy (PaCE) was implemented by the state's investor-owned and regulated utilities, the Office of Regulatory Staff and the State Energy Office in 2007.

The imposition of a renewable energy requirement in South Carolina will result in higher costs. If such a requirement is established then there must be corresponding benefits that outweigh the costs. To date, it has not been demonstrated that the benefits will outweigh the costs.

Any consideration of a renewable energy policy should include the following key elements:

1. The Public Service Commission should be charged with determining any renewable energy policy for the state's electric utilities and periodically reviewing any such policy to ensure it continues to be in the public interest.
2. Cost-caps should be established to limit the additional costs to utilities and consumers.
3. The Public Service Commission should be required to establish an annual rider to allow regulated utilities to recover all costs associated with compliance with a renewable policy.
4. Any renewable energy policy should be reasonably achievable
5. Utilities should be allowed to attempt to procure renewable energy from a competitive market at lowest reasonable cost.
6. Any renewable energy policy should not favor specific sources by creating set-asides for certain technologies.
7. Any renewable energy policy should consider incentives for promoting renewables.



PURC Renewable Energy Comments 9.29.2010

SC has substantial untapped renewable energy resources in offshore wind, biomass, and solar. However, it is not likely that we will see significant near-term investment in these areas without requisite changes to our state's energy policies.

Taking into account the unique situations of the various energy providers in this state as well as the need to protect rate payers, this advisory committee should evaluate what options are available to state law makers for promoting development of the renewable energy potential in SC.

This evaluation should include analyses of renewable energy policies enacted in other states, potential impacts on rate payers, implications for energy independence and national security, sustainability, and the economic and environmental impacts of various policy options.

Short Term (2018):

- Determine what renewable energy sources are viable in SC
- Develop cost effective policies for the diversification of SC's energy portfolio
- Benchmark SC's investment in renewable energy resources against other states
- Conduct a nationwide review of renewable energy policies implemented in other states
- Procure expert testimony on renewable energy potential and policy options for SC
- Set statewide development targets specifically for offshore wind, solar, and biomass (500MW)
- Consider the use of cost caps for service sectors (residential, commercial, industrial), feed in tariffs, power purchase agreement guidelines, and utility cost recovery allowances to achieve these targets
- Evaluate challenges associated with integration of renewables on to the electric grid
- Recommend incentive packages for installation of distributed renewable technologies (including geothermal and solar thermal technologies)
- Recommend incentive packages for renewable manufacturers
- Develop guidelines and regulations for the sustainable harvesting of biomass
- Enact PACE/Municipal financing enabling legislation
- Advocate for a SC offshore wind industrial cluster initiative
- Provide collective support for Santee Cooper's Palmetto Wind project
- Enact adequate statewide net metering and interconnection standards
- Evaluate the benefits and drawbacks of decoupling on renewable energy development
- Enact policies that prioritize energy efficiency in mitigating the elevated costs of future investment in renewable and traditional energy generation
- Designate working groups for specific technology and policy recommendations (expert, academic, environmental, and private sector participation)
- Support for R&D in the private and public sector
- Develop a public education initiative on renewable energy
- Create a State Revolving Green Loan Program

Long Term (2030):

- Maintain a flexible comprehensive state energy policy
- Maintain an active advisory committee tasked with producing a yearly report on SC's comprehensive energy policy that evaluates national and global trends in energy technology, investment and policy and which includes recommended improvements to the state's comprehensive energy policy



PURC Renewable Energy Comments - September 29, 2010

In South Carolina, there is great potential for renewable energy in the form of offshore wind, biomass, and solar which can offer numerous benefits to the state. They can provide economic development; promote the cost-effective, environmentally sustainable resources; and reduce environmental impacts of electricity generation (pollutants and greenhouse gases). Yet, state energy policy could do more to encourage investment in these resources.

The short and long term goals of this Committee should include fostering the growth of renewable resources, while considering the environmental impacts that can occur. While renewable energy sources can make a significant contribution to environmental protection (by lowering GHG emissions) they are not without their own environmental externalities. For example, wind facilities must be sited carefully to avoid habitat impacts. Promotion and utilization of renewable resources in South Carolina must be sustainable.

[Offshore Wind] – South Carolina offers a significant opportunity for generating energy from offshore wind. The U.S. DOE wind maps rates most of the state's near-shore ocean as a good to excellent source. Over the short term, the Advisory Committee should build upon ongoing interest in initiating an offshore wind project and evaluate options for incentivizing and permitting offshore wind. Any siting for offshore wind should consider the environmental impacts. Coastal and marine spatial planning is an approach that can be used to coordinate the varying interests of ocean users to maximize how we use our ocean space while also maintaining healthy marine habitats.

[Biomass] – Research by the USDA Forest Service and the SC Forestry Commission finds not only that forest biomass is abundantly available in SC, and that current technology exists to utilize it efficiently. Specifically, over 22 million tons/year of sustainable forest biomass is available in South Carolina, which could replace 1/3 of all the coal used for power production in SC. To utilize this untapped resource, the Advisory Committee must, in the short term, investigate options for promoting biomass in our state. Further, guidelines must be established that ensure that any biomass production is conducted in an environmentally sustainable manner.

[Solar] – Solar energy is another resource that South Carolina must utilize. In the short term, the Advisory Committee should consider appropriate incentives to spur investment in this energy resource. According to the Department of Revenue, South Carolina has given about \$130,000 in tax credits for solar, compared with close to \$600,000 worth of credits given by Georgia for solar thermal and solar photovoltaic energy. Additionally, solar development on a large-scale should only occur after full consultation with state wildlife and natural resource agencies to assess impact.

Short Term Goals

- Obtain expert information on viable renewable energy sources and possible policy solutions for South Carolina
- Establish cost-effective policies that support a renewable energy portfolio, such as incentives for offshore wind, solar, and biomass



- Biomass harvesting guidelines
 - Require sourcing plans to assure that sufficient biomass is available and can be sourced from sustainably managed forestlands
 - Ensure that biomass harvesting and land conversion rates do not result in long-term reduction in the carbon stock of the landscape
 - Encourage biomass utilization at high efficiency facilities (combined heat and power units rather than electricity-only facilities)
- Offshore wind that incorporates marine spatial planning
 - coordinate the interests of ocean users to maximize how we use our ocean space while also maintaining healthy marine habitat

Long Term Goals

- Establish an annual report on South Carolina's energy policy that evaluates global and national trends and recommends changes for South Carolina to continue moving forward

Submitted by Christie McGregor, Director of Government Relations, The Nature Conservancy

To: Members of the PURC Energy Advisory Council
From: Dennis Boyd, Electrical Power Engineer – Nucor Steel Berkeley
Date: September 29, 2010
Re: Comments on Renewable Energy Issues

Based on the charge to provide comments in one page or less, I have the following preliminary concerns and suggestions regarding renewable energy issues. I look forward to hearing more on these and other issues from the other members of the council.

Overall Comments:

A competitive, reliable and favorable energy policy for South Carolina is a very important public policy goal, and utilizing the right cost-effective renewable and other clean energy options in both the short term and long term will benefit all South Carolinians. Including renewable energy, clean energy, energy efficiency, conservation and demand response in the state's overall energy policy will solidify South Carolina's commitment to emerging technologies and to ensuring reliable and affordable sources of power. In defining the types of resources that should be encouraged, the definition for renewable energy resources adopted in Section 48-52-220 of the South Carolina Code of Laws is a great starting point. Caution should be exercised in setting any specific renewable energy targets for utilities, at least until a fully-detailed comprehensive renewable energy policy approach is developed and understood. Moreover, if targets are set, they should be voluntary rather than mandatory and implementation should be subject to appropriate regulatory review.

Delivery of reliable, competitively-priced energy is critical to the success of South Carolina and the ability of businesses to continue to provide secure and significant wages to employees. Cost allocation and recovery are crucial elements of any renewable energy policy. Charges by utilities to recover renewable energy costs must be kept at a reasonable level in order to limit the economic impact on customers (caps on charges for renewable energy should be set on a per customer basis). Costs associated with renewable energy should be properly allocated among customer classes, and recovered from customers through rates, in a fair and reasonable manner and consistent with the recovery of the fixed costs of power plants replaced by such renewable energy sources. Cost recovery should also be consistent with (and should not undercut) South Carolina's economic development goals, in particular retention of existing manufacturing jobs and expansion of the industrial sector.

Short Term Goals

In addition to the above considerations, the State should consider advancing policies favoring renewable energy through means other than renewable energy requirements for utilities – for example, South Carolina could: (1) increase tax credits and other incentives for renewable energy research and development, for producing renewable energy, and for customers and others willing to invest in expanding renewable energy usage; (2) promote net-metering options; (3) require purchases of green power for governmental needs; and (4) require utilities to offer renewable energy options to customers that request this type of power and wish to pay the cost.

Long Term Goals

The State should ensure that reliable and competitively priced power is available for all South Carolinians, while encouraging the integration of cost-effective renewable and other clean energy options into the state's power supply portfolio.



V S C

Conservation Voters of South Carolina

Now is the time to move to real American energy independence.

Investing in renewable energy will make our state and country safer and improve our economy by creating jobs that cannot be exported overseas. South Carolina can be part of our national energy security solution.

Our dependence on oil is a threat to our national security. We currently send over \$1 billion a day overseas to pay for foreign oil, and some of those American dollars are used to fund our nation's enemies. South Carolina ranks third nationally in terms of our vulnerability to rising gas prices.

South Carolina energy policies should look at ways to decrease our dependence on foreign oil by encouraging South Carolina-based biofuels. In its broadest terms, on the energy generation side, what exactly are our biofuel resources and how can we support them?

Specific recommendations for further exploration:

- Identifying and evaluating state policy initiatives to expand production and retail availability of biofuels, including a renewable fuels standard
- Working closely with agriculture leaders and researchers at universities in the state to develop biofuel crops that do not threaten the environment or traditional food crop production
- Soliciting testimony from corporations and universities with particular expertise in these fields, including Spinx, a leading Upstate-based service station chain that has already begun to carry biodiesel and E-85; BMW, a world leader in hydrogen fuel research with a major manufacturing plant in the Upstate; and ICAR (the International Center for Automotive Research), an interdisciplinary center run by Clemson University; and the Biomass Council, a trade group representing private companies
- Reaching out to state farm bureaus, agricultural interest associations, state forestry departments, state agriculture departments, agriculture companies and individual farmers about the benefits that biofuels would bring to their businesses
- Increasing methane gas production from South Carolina landfills
- Developing biodiesel made from refined waste cooking grease (yellow grease)
- Exploring ways of integrating biofuels into public sector transportation and vehicles
- Expanding and strengthening tax credits and incentives for biofuel production, distribution and consumption

Bob Long

Public Utilities Review Committee (PURC) Energy Advisory Council

Renewable Energy - Short Term and Long Term Goals

South Carolina's renewable resources include solar, offshore wind, biomass and hydro. Renewable resources, nuclear energy and energy efficiency are all sources of clean energy that South Carolina should promote.

Promote the Voluntary Development of Renewable Resources

Palmetto Clean Energy (PaCE) gives customers of investor owned utilities the option to support the development of renewable resources in South Carolina. Customers voluntarily make tax-deductible financial contributions to PaCE. Serving as a third-party administrator for the contributions, PaCE aggregates customer demand, qualifies renewable generators and selects and contracts with renewable generators to meet customer demands. Customer participation is voluntary.

www.palmettocleanenergy.org Recommend expanding PaCE to provide for voluntary participation by all South Carolina electric customers.

Federal and State Mandates for Renewable Resources

Legislated mandates won't assure that least-cost energy is supplied to customers. Until renewable resource prices reach grid parity, customers will face premium prices. Recommend the State of South Carolina provide for tax credits, regulatory cost recovery, price caps and premium returns on equity for utilities that must comply with any Federal or State renewable energy mandate.

Recommend empowering the South Carolina Public Service Commission with establishing and administering renewable energy policy for regulated utilities.

Targets for Clean Energy

Over time, each utility has constructed and invested in its portfolio of generators and energy supply. As demand for electricity grows in South Carolina, clean energy sources should be part of meeting that demand growth. Any clean energy target set for the State should leave with the utility flexibility to serve its customers with least-cost, reliable, compliant energy as it manages to balance an electric supply portfolio. Recommend clean energy targets should be for the State and stated as a % of electric retail sales.

Below are a few points to consider for our discussion on renewable energy policies and goals for South Carolina:

- Threshold question - What are the practical renewable resources in South Carolina and what are the cost impacts to customers in order to harness them?
- Santee Cooper has been aggressively pursuing renewable energy resources for a number of years and considers renewable energy as an important part of a larger goal to increase the non-greenhouse gas (non-GHG) energy portion of our system.
- Santee Cooper's pricing approach to the development of renewable energy resources is cost based. This means that we are seeking renewable energy resources that are close to the cost to produce the energy based on conventional generation with a premium added for the renewable nature. This approach protects customers against significant cost increases.
- Developing renewable resources in South Carolina at a cost based price point has different challenges, some geographic, some technical and many economical.
- South Carolina's electric customers (residential, commercial, industrial and wholesale) are better off with incentive based policies (general federal incentives and economic development styled state incentives) rather than policies that would create a market through a State mandate, requirement or standard.
 - For example, Section 1603 federal tax grant incentives for renewable energy sources are scheduled to expire at the end of this year. The removal of this tax incentive will have a serious impact on the renewable investments in SC, including biomass opportunities.
 - With incentives, renewable power producers have the ability to get close to the cost of conventional generation, with this help from the government making a policy decision to support the effort.
 - With mandates, the government is establishing a market and the electric utilities and their customers have to support the effort regardless of the cost impacts to the customers.
- Electric utilities operating in South Carolina are aggressively making decisions to develop significant non-GHG energy operational measures, including nuclear and renewable energy and energy efficiency programs. If any electric utility believes there are regulatory barriers to developing economical renewable energy, then the State should consider targeted policies for that purpose.

Electric Cooperatives of South Carolina

Renewable Policy Suggestions Submitted to the PURC Advisory Committee 9/30/10

South Carolina's electric cooperatives view any clean energy initiative – be it through goals or standards – to be an organic process, flexible enough to embrace new technologies and cost-effective second and third generation products. If the bottom line is to be cost-effectiveness, energy providers should invest in the short-run in what is proven to work – energy efficiency.

The electric cooperatives also believe that it is important to “prime the pump” with regard to renewable resources that have a high likelihood to be successful in South Carolina in the near-term. Except in unique circumstances, energy providers should be left to make choices that fit their build plans or IRPs. Providers should be required to commit a small, but appreciable amount of their revenue to their choice of renewable generation. South Carolina's electric cooperatives through Central Electric Power Cooperative, their power supplier, currently budget 1.1% of Central's annual revenues for the development of renewable generation and energy efficiency. Substantial revenues are used to purchase output from renewable generation facilities already constructed. Cooperatives suggest that all providers be authorized and required to make similar levels of investment in the development of renewable generation and energy efficiency.

In addition to a variety of energy efficiency options, providers should be able to choose from the following renewable generation resources in making these investments:

- Biomass (with certain limitations)
- New hydropower installations or improvements in existing hydropower
- Solar (including solar thermal)
- Wind
- Tidal
- Wave
- Geothermal

Electric cooperatives propose the attached specific measures to advance renewable energy generation in South Carolina:

1. A change in state sales tax structure to promote renewable generation.

South Carolina imposes a tax on electricity that is sold within the state, unless a specific exemption applies. All renewable generators who produce and sell electric power are subject to the tax set forth in Section 12-23-10 et. seq. of the South Carolina Code of Laws. This tax is imposed at the rate of 5/10 of one mill for each kWh sold. By giving renewable generation an exemption, the state could further encourage the development of these resources.

Further, South Carolina can promote renewable investment by allowing a sales tax exemption for the retail sale of renewable energy devices and for any installation of those devices. Currently a tax credit exists for solar sales and installation, but the equipment is still subject to sales taxes. Other states have allowed both a tax credit and a sales tax exemption.

2. Statewide funding for wind energy research conducted by the South Carolina Public Service Authority (Santee Cooper).

Since March of 2009, Santee Cooper, in a partnership with Coastal Carolina University and the State Energy Office, has been studying the feasibility of on-shore and off-shore wind in South Carolina. While this project has yielded strong baseline data, it also seems to be at a critical juncture in which more resources must be allocated for the study to produce reliable data on real-world offshore wind installments. Offshore wind has the potential to be relatively abundant compared to other sources of renewable energy in our state but presents immense technical challenges. Accordingly, we believe this off-shore wind research should continue into the next phase and that the cost of continuing it should be borne by all of the electric providers in our state. It is our belief that the cost of the next phase of research will be about \$4 million. We believe that in addition to the data that will be collected by the increased scale of the next phase, it will provide all interested parties with information about whether or not further phases of the study are justified or necessary. (Federal funding may be available and should be looked at as a possible funding source as well.)

3. All electricity providers in South Carolina should be required to set aside an amount of money annually for the development of renewable resources.

Each electricity provider should be required to set aside one dollar (roughly equivalent to 1.1% of budgeted expense), per month, to be used by that company to achieve its internally set goals for the development of energy efficiency and renewable energy. These funds could be used at the discretion of each company to provide a consistent and reliable commitment to pursuing the cost-effective implementation of existing renewable technologies, the development of new renewable technologies and the creation of a defined market in which businesses focused on renewable energy could thrive. The funds could be used for research, for developing assets, for purchase power agreements from independent producers, or any other qualified purpose designated by the State.

4. The updating of the 2007 La Capra study of renewable generation resources in South Carolina

In 2007, the electric cooperatives in South Carolina commissioned a study of the renewable sources of electric generation available in our state*. They did this in order to have an informed basis upon which they could make plans and allocate financial resources as they made provisions for future generation needs. The information was tremendously helpful. In the last three years, there have been advances in technology and load forecasts have been affected by the lagging economy. It would be very beneficial to update this study so that the state has an accurate picture of what resources are at our disposal and what costs we can reasonably associate with each.

*The report can be viewed at:

<http://www.energy.sc.gov/publications/Renewables%20Potential%20Final%20Report%200-09-12-2007-B.ppt>



September 30, 2010

To: Ms. Heather Anderson
Committee Counsel
PURC Energy Advisory Council

From: Hank McCullough, Piedmont Natural Gas Company

Re: Comments pertaining to renewable energy in South Carolina

1. Support the development of biogas, biomethane and non-traditional methane production to the extent that feed stocks to produce such fuels do not negatively impact food supply and future soil quality for food crops, livestock, and other valuable agricultural products.
2. Allow natural gas utilities, investor owned, municipal or otherwise to pursue projects/partnerships that involve injection of biogas/biomethane and/or other non-traditional sources of methane into natural gas utility systems to the extent that such fuels meet pipeline quality, reliability, safety and heat content (btu) standards, and to the extent that specific projects are economically attractive to both the producer, the utility and the end user. Create reasonable incentives for biogas/biomethane injection projects. Allow regulated natural gas utilities to recover reasonable costs through their rate base for embarking on such projects. Insure that all applicable pipeline safety standards, both state and federal, associated with underground utility systems apply to biogas/biomethane injection projects.
3. Support landfill gas projects for dedicated projects and on-site power generation. Landfill gas operators should be required to meet all safety standards regulatory requirements that natural gas utilities and other fuel providers (gaseous or liquid) are required to meet from both a federal and state regulatory perspective if they are delivering landfill gas off-site site locations.
4. Implementation of renewable energy projects should consider total fuel cycle efficiency in evaluating life cycle costs and benefits. External energy required to sustain processes, feedstock transportation energy, and energy required for delivery of renewable energy should be included in the analysis. Secondary environmental impacts associated with specific renewable energy projects should also demand consideration.