

Wind Energy Production Farms Feasibility Study Committee Meeting Public Hearing
Minutes
October 12, 2009
6:00 – 8:00pm
Clemson Facility at the Baruch Institute
Georgetown, SC

Committee Members in attendance:

Senator Paul Campbell: Chair
Senator Daniel Verdin
Representative Nelson Hardwick
Hamilton Davis: Coastal Conservation League
John Boyd: Haynsworth, Sinkler, and Boyd Law Firm
Roger Schonewald: GE

Presenter

Marc Tye, Vice President of Renewable Energy and Energy Efficiency, Santee Cooper

Introduction

Sen. Campbell introduces self, board of panelists. Panelists explain their roles in the committee, all support the responsible development of offshore wind, the creation of jobs, and would like to shape state legislation such that economic gains can be achieved and turbines installed.

Marc Tye presents Santee Cooper's wind activities to date, including an introduction to S/C, renewable energy goals, cost comparison of renewables to conventional, and the need to create a cost-effective energy portfolio. After the presentation, two audience members seem to have urgent questions, but the panelists have no questions and he returns to his seat.

Public Comments

Toni Reale – My name is Toni Reale and I'm the coastal program coordinator for the Southern Alliance for Clean Energy and I've prepared a few comments I would like to share with you all. My organization, Southern Alliance for Clean Energy, works to preserve, restore and protect our environment through the use of innovative technology, grassroots and decision-maker education, and dedicated policy advocacy. As both a citizen of Charleston County and a member of an organization who works to ensure that the Southeast becomes a leader on climate energy issues, I thank you for the work that this committee has done thus far, in helping South Carolina realize its renewable energy potential. Offshore wind farms have been proposed and are currently in detailed planning stages in Massachusetts and Delaware. In North and South Carolina and Georgia offshore wind farms are in various stages of planning. We are pleased that South Carolina is currently conducting a research study with Coastal Carolina University and the South Carolina Energy Office that uses weather buoys to measure the wind off our state's coast. We are glad to see this because this is a significant step towards the beginning of offshore wind development in this area. Once developed, offshore wind power will supply affordable, inexhaustible energy to our region's economy. It will also provide jobs and other sources of income, as has been the case elsewhere in the world where offshore wind energy has been developed. The assembly, staging, construction and maintenance of offshore wind farms will create a range of jobs

for South Carolinians. Germany offers an example of offshore wind, how offshore wind can create a booming economy where 700 new jobs have already been created in the past three years with the introduction of offshore wind to the city of Furmerhaven, and three to five hundred more are expected. Offshore wind energy offers a hedge against the impact of rising fuel costs and can help stabilize and reduce electricity prices by displacing the need for more expensive power plants. It is anticipated that there will be a reduction in energy costs as new technology is developed and as the offshore wind industry advances in this county. GE, as we know, produces land based wind turbines in Greenville, SC, and they are currently conducting a research project on new generation of offshore wind turbines that will reduce the cost of energy delivered. The proposed projects in the Southeast and along the U.S. coast provide the market to support new technology development that can lead to further job creation in this region. The Charleston area, where I'm from, with our active port facilities, established manufacturing and steel industry can serve as a future hub as the offshore industry emerges along the U.S. coast. Research has found that most birds fly around offshore wind turbines rather than into them and change their migratory patterns accordingly. Offshore wind turbines are also designed with bird safety in mind with slower moving blades and a tower that is inhospitable for birds to land on. Also wind energy developments overall impact on birds is extremely low compared to other human related causes of bird deaths including buildings, communication towers, traffic and house cats. Lastly, I would like to point out the impressive potential for offshore wind energy that our region is fortunate to have. The strong consistent winds that blow along the shallow vast outer continental shelf that span the Carolinas, Georgia and Florida represent a potential 486,000 GWh of clean sustainable energy for our region. Thank you.

David Wylie – Good Evening. This is kind of informal. I'm from Georgetown County School District. My push is really from an education perspective. I see in students as well as adults a huge potential for education in regards to wind energy. I have parents phoning me up asking how they can be more involved in the wind project and so on. I would like to suggest that we formalize an education from high school all the way up as far as wind energy goes because no matter which way you look at it, it's part of the equation of the future. Having talked to several people tonight, I hear that there are potential grounds out there to do that. This is happening in our backyard so to speak, so I'm really hear to secure my students' future in regards to the green jobs. You hear it all the time from the White House down, but I think we need to formalize it more, because those are the people who are going to be repairing the turbines or whatever. There needs to be more attention drawn and formalized to potential funding for students and more collaboration and I really appreciate the collaboration with Santee Cooper today, and I think we need to carry that on, but it really needs to be formalized otherwise these potential engineers of the future are going to be left a bit behind and we want to be leaders in that just like Santee Cooper is. I can't help but resist a side comment, because as a researcher on a previous slide mentioned, as far as the migration of birds goes, there have been a huge number of studies in Europe, and it really wasn't a significant factor as far as migration habits goes on birds and birds impacts in the turbines and so on. So there's a lot of research out there as far as visibility, sound and also migration habits of birds out there, that these huge turbines off Holland and so on are not really detrimental to the environments of the birds. I just wanted to make that comment. Thank you.

David Stoney – Thank you very much. My name is David Stoney. I'm from McClellanville, SC, and I'm the director of an all volunteer grassroots group that is

concerned about climate change and global warming. The name of that group is the “Kitchen Table Climate Study Group”. If you would like to learn more about us, we have a website: Google “KTCSG” to pull us up. We are trying to educate and inform our friends and neighbors about the peril that South Carolina’s lowcountry is in due to global warming and sea level rise. So we are delighted to see the emphasis on wind power. We are delighted that Horry County and Georgetown County has an opportunity for green jobs and a boost in their economy. Marc Tye, we are delighted to see Santee Cooper take such an active interest in this. I wanted to urge the feasibility study panel to work with all due speed. The climate crisis is accelerating. Changes at the poles are accelerating due mainly to increases in ocean temperatures, and of course the oceans get their increased heat from the increased global warming due to greenhouse gas productions. And the greenhouse gases that enter the atmosphere today will still be there, especially the CO₂, in the next 100 years. What goes into the air today will have a warming effect for 100 years. And if we don’t start a program for our country that will rapidly reduce greenhouse gas emissions, we will lose the South Carolina lowcountry, and without the South Carolina lowcountry we’re not going to have a state and we are not going to have an economy. So it is critical that we develop alternative sources of power and that we find ways to reduce greenhouse gas emissions very substantially by 2020. So I urge the committee to work as fast as you can to see if this offshore capacity for wind indeed is feasible. And if it is, go for it. One comment about the cost comparison Marc presented: it is a little misleading to try to out cost when you don’t take into account the cost of taking no action. The cost of coal will be much higher than indicated in that chart if we lose the lowcountry due to greenhouse gas emissions. You need to start taking into account the best guesses about what it will cost us if we do nothing. So remember when you look at these costs that we need to factor in the cost of doing nothing. If we lose the South Carolina lowcountry, we’re going to lose everything. I don’t know how you put a dollar value on that, but it is much higher than a few bucks per kWh. So I urge you to work hard, glad to see you hear. If you want some information about the Kitchen Table Climate Study Group, I have some little handouts that I brought with me. Thank you very much.

Nancy Cave – Good evening, I am Nancy Cave, the North Coast Office Director of the Coastal Conservation League. Our North Coastal Office is here in Georgetown. I want to thank the Feasibility Study Committee for inviting us all to comment to you. I think it is very commendable that you are out talking with the public. Offshore wind represents South Carolina’s largest clean energy resource, and the Coastal Conservation League supports taking the necessary steps to make wind a utility energy source in this state. In addition to providing a significant energy source, the wind industry can give South Carolina an enormous economic boost creating new sources of revenue and new jobs. The U.S. Department of Energy estimates that the wind industry could provide the state with in the range of 80 billion dollars in revenue and 20,000 jobs. The state needs to take advantage of this opportunity. We have to do it now before others take it away from us. But we must have the necessary energy policy in place to bring offshore wind investors and developers to the state. We need to participate if not lead the national and international discussion on offshore wind to do this. And leadership must come from you, the elected officials. The Coastal Conservation League encourages this study committee to make clear, substantive recommendations to the General Assembly in the 2010 session. Recommendations that will put South Carolina to capitalize on wind energy now. I would add that we are having an energy efficiency conference on October

22nd in Florence and Senator Campbell is speaking and I would welcome you all to attend.

Bob Grove – Good evening my name is Bob Grove and I live in Georgetown, more specifically in Debedo Colony. This is not a presentation for or against, I just want to present a fact and answer a question that came up repeatedly during a presentation a few months ago by one of your project staff. “Will the turbines be visible from the shore?” was the question. A little bit of plain geometry answers that question if you stand with your eye at the surface of the earth and look out, the curvature drops off and using the pathagorium theorem if the height of the turbines or the blades is a 100 feet up it has to be 12.2 miles out to be invisible. I saw on your chart here you are talking about anywhere from 50 meters to 100 meters, which is 300 feet, so if you up on 200 feet you have to be 17 miles out. If anyone wanted to know more about that I brought some papers here that show my calculations. Thank you.

Philip Branton – Hi my name is Philip Branton. I drove up from Folly Beach. Where do I begin? Number one, this is political. Do you see any black people in this room? That’s problem number one. Number two is education which was pointed out earlier. Number three, Santee Cooper, this is about three decades to late. I don’t know how long GE has been producing turbines in Greenville, but the very first one should have gone up off the coast of South Carolina. We had these magic carpet people coming in here from the Middle East buying our turbines the least we could show them was the sales model. I’m not being too nice. We have Sandia National Labs, we have Idaho National Labs, we have Hanford Facility and we know what’s been developed. And 200 meters up? We are talking about a mile, mile and a half. We have vast marsh farmland and I don’t hear one turbine complaint from the farmlands out west. The City of Myrtle Beach they should be energy self-sufficient. Alaska gets a rebate on the oil they sell to the 48 state. It seems like the City of Folly Beach with the marshland around that city that they control, could have 10, 15, 20 turbines at least. That ocean out there ought to be growing ocean hair, along just like the rows of corn that the shrimpers go up and down. It is not rocket science. Now of course, I am no Santee Cooper engineer. But you know when I see all of these high tension power lines and I see the easements that are available and I see all of these Santee Cooper power workers, and I ask them, hmm, what type of royalty are you getting off those easements in addition to the power running along those easements? This is long overdue. Long overdue! I appreciate your time coming down here Mr. Verdin. Some of the meetings I have been at, there is not one elected official. That is unsatisfactory. I appreciate it. Mr. Hamilton, I appreciate your time. I drove an hour, just like Jim Valdono and there is no black people here. None! That is unsatisfactory, in my book. (Question from the crowd: “Did you invite any?”) Well the two that I know that would have been here tonight, are actually over at Maple’s Inlet serving us right now. (Comment from the crowd: “Well I read it in the paper.”) I did to, today. I made that comment in the Post and Courier. Thanks for telling us – it sure would have been nice to make appointments for babysitters. We have a job to do people. And this is political. And I appreciate everyone coming out here, because I am fed up.

The floor is opened to public questions.

- Roger Schonewald answers a man’s questions regarding technical aspects of wind turbines. Confirms that they will most likely be in the 3.5MW to 5MW range, that turbines are designed for case specific wind characteristics, emits electricity at 60Hz,

and should be spaced 3-5x blade diameter lengths. Questioner wants audience to realize these turbines could be 500' tall, will have to go through a lot of trouble to develop, and don't throw out coal or nuclear yet.

- Toni Reale of SACE asks Marc Tye why nuclear was excluded from cost comparison and how much it costs. Tye replies that this was an independent study that he was not a part of, he does not know those costs. P. Campbell states that the cost for nuclear is similar to coal.
- P. Campbell answers a man's question that MMS will handle development in federal property and a task force is preparing regulations for state waters. Confirms that development must conform to NEPA guidelines.
- Commenter notes that most bird studies have been performed in EU and email exchanges say there is a possibility that migrating song birds would be affected by offshore turbines. Asks that the bird issue not be dismissed but should be studied. P. Campbell comments that b/c of NEPA, any federal action requires an EIS, and all bird, marine, wildlife issues would be addressed.
- Commenter asks panel/crowd for confirmation that S/C's cost comparison was accurate, and if an independent study could confirm it. Tye notes that the LaCapra study was independent and paid for by the Electric Co-ops. Campbell confirms that from his experience the numbers seem accurate. Hamilton Davis comments that the range of costs for coal may be low b/c no new facility has been built in years and fuel costs have increased 60% in past 5 years. Notes that the costs for coal do not account for increasing fuel costs or potential carbon taxes and states that the fuel for wind turbines is free.
- Campbell states that solar power is not ready for utility scale development in SC. Good for hot water heaters and residential use, but wind and biomass are utility ready.
- J. Sutton, Pawley's Island, states that he owns a wind farm in MI and his company focuses on private funding for onshore wind projects. Has concluded that onshore is economical in SC and that a 1MW turbine, 100m tall located at the Winyah generating facility would produce electricity at \$66.67/MW-hr. States that he does not want onshore wind power to be overlooked.
- David Wylie asks if there are any subtleties involved with the transmission and it is explained that transmission must be underground and the technology is commonly used already.
- Rep from PPG Industries wants to know what industry can do to leverage job creation and market expansion in state. He is told that is a committee goal and to contact state rep.
- Private fiberglass manufacturer looking to get more involved told to meet with Elizabeth Colbert Busch of CURI. The manufacturer also is asking for an industry consortium to help solicit and develop turbine manufacture in South Carolina.

- Schonewald explains decision process for selecting the 3-blade design.
- Sen. Campbell states that South Carolina needs to pursue the offshore wind manufacturing industry, and let the central US states have the onshore sector. Our port access makes a good fit for manufacturing of wind turbines.
- Rep. Hardwick explains committee and sub-committee process required before final committee recommendations, and notes that people can offer opinion at any time and contact their state reps to voice their opinion. Report should be finalized by end of year, hoping for legislative action by June 2010.
- Mary Conley of The Nature Conservancy asks if state regulators have looked into marine spatial planning. Campbell replies that the Reg. Task Force is looking into this, and someone comments that policy guidance for comprehensive marine spatial planning will begin to be distributed in the next 90 days. Campbell responds that he cannot answer Conley's question as to whether the state has requested a wind task force from MMS, H. Davis indicates that several initiatives are underway with that goal.
- Extended discussion concerning whether the committee has considered wave, current and tidal energy. Steve with PEV states that South Carolina has a very limited resource for any of these. Paul Gayes notes that currents, waves, etc are being documented by the Palmetto Wind Research Project.
- Eric Smith of PPG asks what barriers or restrictions remain to developing offshore wind. Campbell notes that the cost of the power generated is a significant limitation to development, but that he is not aware of any other major impediments.
- The meeting ends with an offer from Sen. Campbell for the public to stay and talk further with the committee members individually, and thanks everyone for their attendance and input. Sen. Campbell also suggests that the public can access all the Wind Farms Feasibility Study Committee work and lots of additional information, including all presentations made to the committee by going to the South Carolina Energy Office website.

Organizations in attendance:

- *Coastal Conservation League: Hamilton Davis, Nancy Cave*
- *The Nature Conservancy: Mary Conley*
- *Southern Alliance for Clean Energy: Toni Reale*

Businesses in attendance

- *Pacific Energy Ventures: Steve (?)*
- *Natural Energy Consulting: JC Sutton, two others*
- *PPG Industries - Chester, SC: Eric Smith*
- *ABS Consulting - Luke Blessinger*
- *GE Energy - Fred Gates*
- *SCE&G - Jack Robinson*

Total of 60 attendees