



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

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**North Carolina Board of Transportation  
Environmental Planning and Policy Committee  
Meeting Minutes for December 10, 2008**

A meeting of the Environmental Planning and Policy Committee (EPPC) was held December 10, 2008 at 8:42 AM in the Board Room (Room 150) of the Transportation Building. Nina Szlosberg chaired the meeting. Other Board of Transportation members that attended were:

Mac Campbell	Bob Collier	Arnold Lakey
Tony Dennis	Marion Cowell	Alan Thornburg
Andrew Perkins	Doug Galyon	
Gus Tulloss	Cam McRae	

Ms. Szlosberg called the meeting to order and accepted a motion to approve the meeting minutes from the November committee meeting. The minutes were approved as presented.

Ms. Szlosberg began the meeting by introducing the Co-Chair of the Interagency Leadership Team (ILT), Ms. Debbie Barbour from NCDOT. Ms. Barbour reminded the committee of the request summarizing the proposal from the Interagency Leadership Team regarding updating transportation GIS data layers, specifically in Lenoir County. This proposal is an effort to update all the high priority Transportation GIS layers in Lenoir County (a smaller scale than developing data layers for the entire state), since they were not able to get the 38 million dollars needed to update the GIS data layers across the State. Lenoir County was chosen because NCDOT currently has three new location TIP projects in that County. (Two of the projects -- Cary Road Extension and Pinkhill Bypass -- are scheduled post-year, and the Kinston Bypass is in the current TIP). Because there are three new location projects in Lenoir County, the ILT believes NCDOT could eventually benefit and recoup some of the initial investment that they would make and update the GIS data layers. Global TransPark is also located in Lenoir County, and the ILT believes that planning for that area could benefit from having more accurate GIS layers, as well as any long range planning effort in Lenoir County.

The cost to provide this update is estimated at \$505,000. The money would come from the preliminary engineering fund for the Kinston Bypass project. NCDOT would have to ensure that there are sufficient funds available before proceeding with development of the data layers using project funds. With the current financial situation, up-front funding may not be available. The hope would be to extend an additional \$505,000 up front that they hope to recoup in a project development process with less biological field delineations and less design work through the

development of fewer alternatives. Based on an analysis done on another new location in Kinston, NCDOT staff believes they could have saved roughly \$400,000 if they had used GIS on the project. They also believe that if they were able to expand the use on the Kinston Bypass, they could come close to recouping the initial investment.

Last month, NCDOT staff provided a draft resolution to the Board of Transportation for their consideration. Mr. Perkins asked about the support received from the ILT members. Since that meeting, NCDOT has received a signed letter of intent and collaboration from the ILT for the project (this letter was provided to all members present at the December EPPC meeting). Ms. Barbour stated that she has come before the EPPC Board again asking them to consider showing their support by adopting the resolution for updating the GIS data layers in Lenoir County and to take the resolution to the full Board for their consideration. They hope that this would be an important step in allowing them to fully evaluate the benefits and/or issues of expanding the use of GIS up to the selection of the alternative for new location projects.

Ms. Szlosberg thanked Ms. Barbour for getting the Letter of Intent and Draft Resolution prepared so quickly. She also thanked Mr. Perkins for bringing the issue of ensuring that the ILT partners are in step with the intent of how the GIS data layers would be used to enhance the project development process to the Board's attention at the November EPPC meeting. Ms. Szlosberg asked for questions or other issues to be discussed. There were no questions and the motion to adopt the resolution was approved.

Ms. Szlosberg stated that next on the agenda was a really exciting idea concerning the current climate crisis and attempts to reduce the states dependency on foreign oil, looking for ways to find efficiencies in government and looking for opportunities for revenue streams. She thinks it is important for everyone to be pro-active and think in a visionary way. She is involved in an institute that was created to look at the emerging issues and ideas within the State. This year it is all about transportation infrastructure, roads, water, sewer, and schools and what they plan to do to meet the needs of a growing State.

Ms. Szlosberg introduced Doug Lilly, Senior Engineer at MegaWatt Solar, to discuss more about what is available in terms of solar technology.

Mr. Lilly began by expressing his apologies that Daniel Gregory, CEO of MegaWatt Solar was not able to attend the EPPC meeting today. Mr. Lilly spoke about MegaWatt Solar's mission, which is solar with no subsidies. A lot of the solar work being done right now is being financed based on subsidies coming from environmental agencies, and MegaWatt Solar doesn't believe that is the way to be a sustainable business. They want to make a solar generation plant that is competitive with fossil fuel on a head to head basis. Their mission is to take free fuel from the sun and turn it into electricity.

Generally when people think about solar, they think about flat panels which are seen on roof tops of houses and commercial buildings and in big fields in the dessert of California and Nevada. MegaWatt Solar has a different concept and proposes to use less silicone in their panels. One of the problems with solar panels is that there is a limited supply of silicone right now, and that is what is being used to make the solar cells. Their concept is to concentrate the light by building a

mirror that will take the rays from the sun and concentrate them all into a single beam. Right now the concentration ratio is approximately 20:1, which means they use 95 percent less silicone cells. One of the things about concentrated light is that you have to follow the sun and stay focused on it all day, so their units move with the sun as it changes throughout the day. They also have portable modules which are made available by a third-party supplier.

They have test units in the Hillsborough, NC plants that have four mirrors and generate approximately 750 watts. The solar panels are so white and bright because they are being hit with 20 times the concentration of sun power. One mega watt of energy can require ten acres of land to produce.

Mr. Lilly stated that the advantage of MegaWatt Solar versus other companies is that most of their staff come from a utility background and they know what to look for. MegaWatt Solar is looking at infrastructures that are reusable. With their designs, most of the infrastructure stays and the panels are replaced. In most cases, the technologies evolve on themselves so that they are more efficient and generate more power. They have just constructed a number of projects in Hillsborough and Caswell County in North Carolina, and MegaWatt Solar this past summer. They hope that those projects will be operable in the Spring of 2009. MegaWatt Solar is also working with Florida Power and Light, one of the latest utilities in the country, to do a demonstration project. Florida Power and Light has enough confidence in the design that they have commissioned MegaWatt Solar to put six of the units in front of their headquarters. They are also doing a project with Advanced Energy on NC State University's Centennial Campus in Raleigh; this project involves a lot of electrical development and they are going to give them one of the units to display outside of their buildings and generate power that is intended to eventually intergrate with a car charging station for their electric car. The concept is to use it near parking lots so people can plug in their electric cars during the day to charge their cars.

MegaWatt Solar could go out in North Carolina and buy acres of land and fields and put solar there, but it would make more sense to use the solar energy in places that are not usable for other purposes. Landfills would be a good place for solar because those are areas where nothing will be built.

The main question is how can solar plants generate revenue? First, the energy generated can be sold back to the electric company through a power purchase agreement using a per kilowatt hour rate. The second and perhaps most important revenue stream is through the generation and selling of carbon credits. Carbon credits back to the 1970's used to clean up the plants and are becoming increasingly more very valuable.

Mr. Lilly asked if there were any questions.

Mr. Campbell asked what the wind load capacity was for the units that MegaWatt Solar is building and installing? Mr. Lilly responded that they did their calculations based on uniform wind blowing. They are now looking to being able to operate up to thirty miles per hour. Carolina Power and Light requires them to be able to go 90 miles an hour in an operating position.

Ms. Szlosberg asked, “How are they linked together? If one area goes out, do they all go out?”

Mr. Lilly answered, “No, they will not all go out. They will have some of their smaller units in place because of the wind loading right now. There will be six smaller units in a series, so if one goes out you will lose only that six, but they are only equivalent to one and a half of the units shown previously from the presentation. They generate direct current power which is not what the utilities use. They feed many of them in parallel into a place called an inverter that creates alternating current and then it is suitable for interface to the electric utility grid.”

Ms. Szlosberg asked Mr. Lilly to talk a little bit about the scale in relative to the acreage. Mr. Lilly answered that it is roughly one megawatt per every ten acres. Shearon Harris is at a 900 megawatt unit, which is extreme.

Ms. Szlosberg stated that it would be interesting to think of how many acres there are on right of way between the utility right of way and transportation right of way. Certainly the State has many times as much as that. Have you done that kind of calculation?

Mr. Lilly answered that they haven't looked at what is available regarding State right of way. Another project they are considering is the huge plants out in the desert that are hundreds and hundreds of megawatts. One of the concepts they are working on with Duke Energy that they have a bid on right now is to develop solar power plants with two or three megawatts and to localize the generation. It also helps the grid to generate the power closer to where the power will be used instead of having to transmit the power over long distances.

Ms. Szlosberg asked if there were any other questions. There were no questions and Ms. Szlosberg thanked Mr. Lilly for presenting his presentation to the Board. She stated that one of the things that is exciting is that last year the Legislature passed a Renewable Energy Portfolio that requires the utilities to get 12 % their power in the next 20 to 25 years to alternative sources.

Ms. Szlosberg introduced the presenter of the Equipment and Inventory Control Unit, Lacy Love, to discuss more about another alternative energy item that has been talked about, which is E-85 and how they might be able to get that in the mix.

Mr. Love stated that they are required by State law to offset the use of petroleum products by 20 percent. The Department of Transportation plans to offset this through the use of biodiesel. They have biodiesel all across the State being used by trucks and tractors. They are also using E-10 in their unleaded fuels. Synthetic lubricants and oils are also being used in vehicles to offset and meet demands. They are also programmed to install five biofuel fueling stations for vehicles. The areas looked at are Greenville, Asheville, Charlotte, Hillsborough and Marion, which were picked because they are the places that they have the highest uses of unleaded fuel. They have currently received bids on the Greenville site, and it is a 12,000 gallon tank, which is an addition to what they already have there. The bids are currently being evaluated for the project. They are also working on the other four sites as far as the contracts and should be able to advertise after the first of the year.

Mr. Love asked if there were any questions.

Mr. Campbell asked if the tanks were above ground or underground. Mr. Love answered that the tanks are underground. He stated that most of the older sites which are unleaded fuels or diesel fuels are underground.

Ms. Szlosberg asked what was the reason for the tanks being underground. Mr. Love answered that it is for safety.

Ms. Szlosberg asked if he knew what other DOT's are doing for E-85?

Mr. Love answered no but would guess that they are in the same situation as the State of North Carolina. They are looking at biodiesel and how it impacts our fleet and our equipment. NCDOT is the leader in biodeisel use for State fleet.

Ms. Szlosberg stated that they have been talking about this issue for a while and it always comes down to money. They are looking at ways once again to fund about a \$2 million project statewide. They have about 155 fuel sites and they think a closer look at the infrastructure indicated that they could add E-85 at about 30 sites. These sites would be stratgically placed all over North Carolina and continue to work on and monitor it.

Ms. Szlosberg asked the Board to submit their suggestions to her or Julie Hunkins for the January meeting.

Ms. Szlosberg adjourned the meeting.

The next meeting of the Environmental Planning and Policy Committee is scheduled for Wednesday, January 7, 2009 at 8:30 AM in the Board Room (Room 150) of the Transportation Building.

AJP/jh