

**Northumberland County Planning Commission
October 19, 2017
Minutes**

The regular monthly meeting of the Northumberland County Planning Commission was held on October 19, 2017 at 7:00 p.m. in the new Courthouse at Heathsville, VA with the following attendance:

Chris Cralle	Present	Garfield Parker	Present
Vivian Diggs	Absent	Albert Penley, Jr.	Present
Alfred Fisher	Present	Wellington Shirley, Jr.	Present
Ed King	Present	Heidi Wilkins	Present
Richard Haynie	Present	Charles Williams	Present
Patrick O'Brien	Present		

Others in attendance:
Stuart McKenzie (County Planner)

RE: CALL TO ORDER

The meeting was called to order by Mr. Alfred Fisher, Chairman.

Edwin King gave the invocation.

Albert Fisher led the Commission in the Pledge of Allegiance to the Flag.

RE: AGENDA

The agenda was approved with a motion by Wellington Shirley which was seconded by Edwin King and approved by all.

RE: MINUTES- May 18, 2017

The minutes of the September 16, 2017 meeting were approved with a motion from Albert Penley which was seconded by Charles Williams and approved by all.

RE: COMMISSIONERS' COMMENTS

There were no commission members comments.

RE: STAFF MEMBERS' COMMENTS

Staff apologized for the scheduling error that postponed the public hearing on electric substations.

RE: BOARD OF SUPERVISORS' LIASON COMMENTS

There were no comments from the Board of Supervisor's liaison.

RE: CITIZENS' COMMENTS

There were no citizen comments.

RE: PUBLIC HEARINGS

There were no Public Hearings scheduled.

RE: WORK SESSION ITEMS

There were no Work Session Items scheduled.

RE: DISCUSSION ITEMS

Chairman Fisher noted that the first discussion item is zoning for electric substations. Chairman Fisher asked staff where we were with regards to progress. Mr. McKenzie stated that at the last meeting, the Planning Commission adopted a draft definition for electric substation for incorporation into the Zoning Ordinance, and the Commission also proposed for public comment to allow electric substations as a by right use in Agricultural (A-1), Conservation (C-1), and Industrial (M-1) zoning districts. Electric substations would be a conditional use in Residential General (R-1), Residential Waterfront (R-2), Residential Restricted (R-3), and Historical Site District (H-1) zoning districts. Mr. Fisher clarified that the zoning conditions that are put on a property, in the future the property owner can ask the Board of Supervisors to revisit the conditions, provided they can prove there is a need to re-examine them. Mr. Fisher welcomed Scott Smith, Manager of Engineering from the Northern Neck Electric Cooperative (NNEC). Mr. Smith had some handouts for planning commission members to highlight the NNEC's substation assets in Northumberland County that were distributed to those present. Mr. Smith explained the NNEC's process for long term planning regarding electric power needs, which looks ten years into the future, using economic trends, statistics, weather trends and that the ten-year plan is updated annually. Mr. Smith stated that whatever the peak load is, they double that number for the twenty-year plan and analyze the weak points of the electrical system. This identifies upgrade projects, and the long-term plan is broken up into three-year construction work plans for manageable maintenance of the system. Mr. Smith noted that a peak load of 95 Megawatts was in the 2003 plan, thus necessitating the construction of the Folly substation. Mr. Smith noted that that peak was met recently, and the system is a winter peak system, meaning that the peak power need is during the coldest months, as heating a house takes more energy than cooling it down. Mr. Smith noted that new connections have dwindled in step with the economic downturn. Mr. Smith added that the NNEC service area is comprised of Stafford, King George, Westmoreland, Northumberland, Richmond and Lancaster counties. Mr. Shirley noted that at the last meeting, there was a question as to why the NNEC didn't use a property next to US 360 for the substation instead of the new Avalon Road/Sydnor's Mill Pond Road site. Mr. Smith stated that the site in question is on page

6 of his handout, and what he found out was that property was bought in 1946, and his best guess is that it was bought as a potential metering point for the NNEC to siphon 12,470 volt distribution power off of the nearby VEPCO distribution line at the time. That use never materialized, and the site is too small for an electric substation, thus the need for the proposed site at Avalon Road/Sydnor's Mill Pond Road. Mr. Smith elaborated that the NNEC is trying to reduce the connections to Dominion's distribution network and re-connect to Dominion's transmission network, as that is more reliable. The US 360 site would be a connection to the distribution network and would not be in compliance with the company's wish to move away from the distribution network. Mr. Smith stated now would be a great time to go over the NNEC substation assets in Northumberland County. The Dodlyt substation was original to the electric system and was built in 1948. The next substation built was Lottsburg in 1955. Mr. Smith noted that Mr. McKenzie asked when and where a new substation might need to be built in the county, and he responded that there will be a need for one in the Reedville/Lillian area by the year 2035 according to their projections, which could change. Mr. Penley asked what does he mean by upgrade a substation, Mr. Smith replied add more transformers which increases capacity. Mr. Smith noted that the NNEC bought additional land around the Rainswood and Lottsburg substations to expand into the future, as it is very hard, under OSHA rules, to get a crane into the older, small substation sites to lift and place the heavy 20+ ton transformers that are needed to step down the power. They are expanding the sites to increase safety as well as capacity. Mr. Smith noted that the three most recent substations they have built were in the 2.5 acre size range, which is the size of the Avalon Road/Sydnor Mill Pond Road site. Mr. Smith noted that the Folly Road substation was built in 1955, and that is the last of the substations in Northumberland County that are currently operating. Mr. Smith then transitioned to the proposed substation site at Avalon Road, and noted that they are building that substation to relieve congestion at their other three substations, most notably the Rainswood (Dodlyt) substation. The Rainswood substation is at 78% capacity, at Lottsburg 55% capacity and at Folly they are at 51% capacity. Mr. Smith noted while that seems low, they want to keep each substation at less than 50% capacity in case of catastrophic failure of a substation, which would allow the other substations to absorb the load without interrupting power to the system. Mr. Smith further explained that the three substations distribution lines converge at the site, which is why they are building the new substation there, for increased capacity as well as for a contingency measure. Mr. King asked how secure the NNEC power grid is against cyber attacks? Mr. Smith stated that the NNEC periodically do penetration tests of both the administrative computers, but the substations as well. All of our equipment is password protected, and during the last test they could not get past the firewall. Mr. Parker asked if the NNEC has any plans for solar power? Mr. Smith stated yes, Old Dominion Electric Coop is working on a project and they have been approached by a solar company that has a 20 Mw solar farm that they want to connect to the NNEC, with a completion date of 2019. Mr. Parker asked if there was special equipment to allow a solar farm to connect to the grid. Mr. Smith noted yes, the solar company has to buy and install all the equipment necessary to connect to the grid. The capacity of the new solar farm is 1/5 of the peak load of their system, it is going to have a significant impact on their system. Ms. Wilkins asked what type of impact positive or negative? Mr. Smith stated that it impacts the ability to manage and protect the electric system. Mr. Parker asked if they are using new or old technology in a new substation. Mr. Smith stated that the technology for substations has not changed much since Nicolai Tesla, the most effective way to transmit

a large amount of electrical power is to do it at high voltage, but we have to step it down to distribute to the customer at a lower management threshold, hence the need for substations. Mr. Parker commented that overhead power lines are here forever. Mr. Smith stated that overhead lines are the cheapest way to deliver power and are able to be repaired faster. Underground lines, while more reliable, when they do break, it takes longer to find and fix the problem than overhead lines. Ms. Wilkins asked how long to build a typical substation. Mr. Smith stated that this is an unusual situation, usually they build on undeveloped land. They found asbestos in the farmhouse, which has been abated. Now they have to demolish all of the buildings on the site, once razed they will need to get a surveyor on site to plan construction. Usually it takes 12 to 16 months to complete building a substation. Mr. Penley stated that based on current substations do you still have the ability to upgrade the three existing substations and not move to building on a new site. Mr. Smith stated that they have already done that, as their original plan was to build this substation in the 2007-2009 timeframe. Now they don't have any more time left and need another substation for capacity and reserve capacity for the electric system in Northumberland County. Ms. Wilkins asked if the NNEC has reserve capacity until the new substation is built and Mr. Smith stated yes, there is reserve capacity in the current system. Mr. Penley asked where the line is coming from to power the Avalon substation and Mr. Smith stated from the Garner substation in Richmond County.

Staff asked Mr. Smith if he had in insight into our next topic, namely, does a solar farm need a substation to connect to the electric grid? Mr. Smith stated that he is speaking as a utility and not an solar farm expert, but that the cost to connect to the electric grid is bore by the solar farm developer, so that to reduce costs and boost profits, likely the solar farm developer will locate near a substation or an electric transmission line to reduce the length of the connection to the electric grid. Mr. Smith ended by saying that a solar farm developer may have a different take on the situation, but this was his experience. Chairman Fisher thanked Mr. Smith for attending the meeting, that he certainly learned a lot from his visit, and that he is welcome to stay while the Planning Commission discusses solar farms.

Mr. McKenzie started the discussion by handing out documents from the Executive Summary of the 2014 Virginia Energy Plan, and noted that he would like Commission members to look at the first five paragraphs of the handout, and proceeded to summarize those paragraphs. Mr. McKenzie stated that the Commonwealth has a low percentage of renewable energy sources, that there is tremendous potential for expansion of this energy sector, and that government should do all it can to encourage this growth in order to create a more robust energy portfolio for the state. Chairman Fisher asked who published this document, and staff responded that it was the State Government of Virginia, and they are trying to make it easier for providers of renewable energy to connect to the electric grid. Mr. McKenzie stated that he looked up the Interconnection Rule after talking to Mr. Smith, and handed out a document from the Federal Department of Energy regarding Virginia interconnection standards. Staff noted there are two types of connections, net metering, (which was talked about by Mr. Allain at the previous meeting) which requires utilities to allow connection to the electrical grid and charge them only for the amount of power used after adding the power generated, and this is how a residence with solar panels would connect to the grid. The other type of connection, the FERC Small Generator Interconnection Procedure (SGIP) has three tiers relating to the amount of power generated by the facility. Mr. McKenzie noted that he is showing this document to

help inform Commissioners of the regulatory definition for different sizes of renewable energy projects at the Federal level to help inform how the county may want to define small, medium or large solar farm facilities. Mr. McKenzie continued the SGIP Level 1 is for facilities no larger than 500 kW, Level 2 facilities no larger than 2 MW, and Level 3 facilities no larger than 20MW. Staff indicated that this is one way to categorize the size of the facilities that might be useful in the county zoning definition of small and large solar farm facilities, if the commission decides to break it down that way. Mr. Penley asked how large an area would it take to generate 500 kW. Mr. Smith noted that the Virginia code follows these guidelines, and that takes about 10-15 acres of land per megawatt, so it would take several acres to create 500 kW. Mr. Smith noted that the smaller the size of the generation facility, the less study needs to be done to connect, it gets more complicated when the facility's generating wattage increases. Mr. Smith added that regarding net metering, Virginia used to allow 25kW of net metering, but that some installed larger systems needed and generated a large amount of excess power, so the State then revised the rules so that a net metering connection cannot be sized larger than what the household used in an annualized 12 months cycle prior to activation of the power generating equipment. Mr. Smith called it the net-zero policy so that net metering is limited to approximately the household's yearly energy use. Mr. Smith said he has not seen a lot of that here, most residential net metering connections are 3 to 7 kW. Mr. Smith noted it is easy for a residential customer to apply for net metering, they have to fill out a form for net metering, then the power company comes out and inspects the interconnect, installs a meter and they are up and running. Mr. Williams asked how many people are doing that?

Mr. Smith stated they have about 3 dozen, but when he first came here there were only 7, there are two windmills and the remaining sites are solar, most of the solar panels are on houses, but some are on frames on the ground. Mr. McKenzie took this opportunity to bring to the attention of the Planning Commissioners a photograph of solar panels mounted on a frame on the ground that had already been built as an accessory structure in the county that he showed members at the last meeting. Mr. McKenzie noted that several members thought that the solar array shown in the photo were rather large for a residence. Mr. McKenzie relayed that in talking with Zoning Administrator Philip Marston after the meeting, Mr. Marston told him that the solar array pictured was for a barn that was off the electric grid. Therefore, the solar array was sized to provide all of the power to the garage, since it was not connected to the electrical network, which explains the large size.

Chairman Fisher thanked staff for that clarification, and noted that the discussion on solar farms will continue, and that there will be a public hearing at the next meeting. Mr. Penley asked if we are going to have both electric substations and solar farms at the public hearing. Mr. McKenzie stated he would like to keep them separate and have the public hearing for adding electric substations to the zoning ordinance separate from the public hearing for adding solar farms to the zoning ordinance, but that it was up to the Commission on how they would like to handle it. Mr. Penley stated he is now thinking they should be kept separate, and Chairman Fisher stated that if the public hearings were to be held together, it would be conflicting. Mr. McKenzie noted that there is no hurry with regards to adding solar farms, as the county does not have anyone wanting to build a solar farm at this time. Chairman Fisher stated that to be clear, that the Planning Commission will hold a public hearing on electric substations in November and we will work on solar farms when we decide about whether or not to hold a meeting in December

of this year. Chairman Fisher noted that they typically do not have meetings in December. Mr. Shirley made a motion to not meet in December, as there is no push for getting solar farms into the zoning ordinance this year, we can take that up in the new year. Mr. Parker seconded the motion. All members present voted Aye, and the motion passed unanimously. Chairman Fisher noted that we can take up the solar farms in the new year. Mr. Fisher told the members to mark your calendars, no meeting in December, and a public hearing on November 16, 2017.

RE: PUBLIC COMMENTS

There were no public comments at this meeting.

RE: PUBLIC HEARING

There were no public hearings at this meeting.

RE: ADJOURNMENT

With a motion from Mr. Shirley, seconded by Mr. Fisher, and approved by all, the meeting was adjourned at 8:20 pm.