From: Bill Stewart <stewartpoli@gmail.com>

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To: grenewpc@gmail.com; travaau@cox.net; berkleymaddox@gmail.com; spotsysalem@gmail.com; 2012sheriffsmith@gmail.com; Wanda Parrish; Patrick White; Paulette Mann

To: "Spotsy Planning Gregg A. Newhouse" <grenewpc@gmail.com>, "Spotsy Planning C. Travis Bullock" <TravAAU@cox.net>, Spotsy Planning Jennifer Maddox <berkeleymaddox@gmail.com>, Spotsy Planning Michael Medina <spotsysalem@gmail.com>, Spotsy Planning Howard Smith <2012sheriffSmith@gmail.com>
Cc: Spotsy Wanda Parrish <wparrish@spotsylvania.va.us>, Spotsy Patrick White <pwhite@spotsylvania.va.us>, Spotsy Paulette Mann <pmann@spotsylvania.va.us>

Dear Members of the Spotsylvania Planning Commission

I hereby submit the following:

My name is William D. Stewart, 108 Windsor Cir., Fredericksburg, VA 22405. While a resident of Stafford Coun
commercial real estate in Spotsy, which we have for retirement income. I am a graduate electrical engineer, ha
degrees in Electrical Engineering from Brown University, Providence, RI, class of 1968. I also received my comm
their NROTC program, and subsequently served on minesweepers, destroyers and a destroyer escort on active
spent a year in the Navy's R&D program and a year in shipyard engineering. After four years of active duty, I w
division of Chas. T. Main, Engineers, in Boston, MA before my career changed course into the steamship indust

A number of witnesses have written about the likelihood, the near certainty, of the sPower project becoming a
whether from the urban heat island effect, the vast amount of land wasted, the difficulty and expense of reme
down, as well as heavily polluted storm water runoff illegally going into the Chesapeake (as happened recently
issues. Therefore I'm not going to cover these again.

I am writing about how bad solar power is on the grid, and the likelihood of rapidly rising electricity prices (as h
serious financial damage to working and middle class families, and particularly the poor and retirees on fixed in
destruction of jobs and businesses in Virginia. Contrary to the assertion our last President that "skyrocketing e
thing, they are a total disaster.

Solar power, of course, sounds very attractive to most people: free, non-polluting, energy forever without CO2 conventional wisdom. But to those of us trained in science and engineering, and who have taken time to dig in numbers, the conventional wisdom, as is often the case, is wrong. Seriously wrong.

The brutal fact of life is that these "renewables" produce electricity that is so intermittent and unreliable that t of the time with natural gas turbo-generators of the same label-plate wattage, running (and producing CO2) 24 shining and the wind blowing, the output is so erratic that the gas turbines are "spinning reserves", with throttl turbines instantly to keep them generating steady 60 Hz alternating current. So if you want to produce electric sorry, but these don't work.

Wind and solar have their place, but not on the grid. They are useful for remote locations without grid power, where the cost of batteries is acceptable. They simply don't work on the grid.

The two major factors to be considered are environmental and economic, and renewables fail dramatically on l economic costs of (photovoltaic) solar, the costs are prohibitive, with the Energy Information Agency pegging c that of combined cycle natural gas, so when you add the cost of the gas backup, we are up to 3.5 times the cap solar farms produce electricity only when the sun is shining, not necessarily when the grid needs it for consume

Let's do the math, as it is simple arithmetic, no calculus or polyphase power calculations necessary, and Superv and not leave it to staff:

On average, the sun is giving its energy to the solar panels 40% of the time on sunny days, and in Virginia, you h isn't always sunny. It is, in fact, sunny only 60% of the time, so we are down to 24% of the time when the sPow but it isn't always useful energy. The actual number for useful energy is worse, as it doesn't make much of any hour days, and cloudy, overcast days for extended periods, all times when power is needed. And they do nicely power demands for HVAC are lowest. And the power is not "dispatchable", available when the grid operator n of morning and evening; it makes power only during the day when it is not needed by the grid, as "base-load" g demand. Dominion Energy estimates that the actual "label plate capacity factor" in practice is only 15-20%, wh less. And the more you build solar farms, the lower this number becomes, as they make more and more electr and none when it is needed.

Therefore, you calculate that the system is producing electricity from natural gas something like 85% of the tim generators are running the rest of the time also, CO2 savings are minimal, if any, and at great expense—far gre reduce CO2, like, for example, growing trees. And while sunlight is free and natural gas is only cheap, the main coming in higher than what was estimated. European experience is that electricity from renewables costs 3-4 t exist only because of large taxpayer subsidies and high electricity prices. Consumers pay twice, once to the tax company. And high electricity prices destroy jobs and harm people.

What the Supervisors have to determine is where the $1.1 billion is coming from to build the farm, and how is t going to get paid for. When you have capital costs over three times that of natural gas, and the farm produces the time, somebody has to pay for the difference, and you can take it to the bank that it isn't going to be the co believe happens, and until you can get all the contracts we won't know, is that these are take and pay contracts paid out of higher energy prices that the rest of us will be paying as well as tax subsidies such as the 30% ITC or

You need to demand the following for this project:

1) All the contracts and guarantees between sPower and their customers,
2) All the contracts between sPower and PJM, the grid operator,
3) Any contracts that Dominion Energy has related to the project,
4) And very importantly, all the projected operating statements including all tax related transactions, "renewable energy certificates", RECs, for the lifetime of the projects.

If anyone refuses, including giving the excuse that the contracts are private and contain proprietary informatio you do get them, they need to be analyzed, and that is for staff—and perhaps pro bono volunteers to do. The need to know what this is going to cost them.

Remember also that AES, the parent of sPower, went bankrupt not all that long ago, and if this $1.1 billion proj have a brutally expensive problem on its hands for a very long time. Forewarned is forearmed.

There is a reason that Europeans have wised up and have stopped investing in renewables, both wind and sola than we did, and have finally realized their mistakes. There is no reason for another solar project: we already k destroy capital that could be used elsewhere to prove again that solar doesn't work? Let's learn from their mis again.

There is only one economical way to produce the electricity we need for our modern economy that is truly CO2 most honest environmentalists know it by now. Fortunately, Dominion Energy is an experienced operator that Virginia and licensed to build another at the North Anna plant. If they can build it for the right price, they need forget the expensive, unreliable, CO2 producing "renewable" solar power in Spotsylvania County.

I'll be happy to meet with you or any other Supervisors or county employees at any time.

Sincerely yours,
William D. Stewart

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