

February 14, 2021

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Solar Energy Process in Prince William County – Problem & Recommended Improvements and Incentives

PROBLEM:

Prince William County homeowners have no county or state incentives to install renewable energy solar systems. If, in spite of this, they do choose to install a solar system, traversing the current county process is a true disincentive – it is too expensive and too difficult. Local businesses are also lacking in incentives for installing solar. People are being turned away by the current condition.

Solar installations must be rewarded, not penalized. The only way that Prince William County, and the state of Virginia, will achieve their solar energy goals is by making distributed residential and business solar energy production more attractive and easier to achieve. An incentivized and more decentralized use of the electric grid will ensure PWC's and Virginia's success with renewable energy. Analysis shows that administrative action can enable doubling of renewable energy penetration within the next decade (access report at end of this document).

Personally, we have now had a 10.7 kW solar array installed on the standing-seam metal roof of our home, consisting of (26) 410 watt modules with integrated microinverters. We started the process in August of 2020, selecting our contractor in September. The design for our system was submitted to the county in mid-October. The system was finally operational on December 10, 2020. To get our solar project installed and working, we experienced many obstacles and delays in dealing with Prince William County, details below. The only incentive we can currently benefit from is the federal income tax solar credit.

While exploring issues with our solar installer and others, we have been told that PWC's solar process, when compared with other jurisdictions, is "the most expensive and arduous we have to deal with;" "we have to re-invent the wheel and resubmit numerous times;" and PWC's process is "renowned around the country for how bad it is." This must change.

We view the following recommended improvements and incentives for the solar process as critical for PWC to implement in 2021.

RECOMMENDED IMPROVEMENTS and INCENTIVES:

1) Eliminate or reduce County residential solar permit costs

- a) PWC waive all permit costs for residential solar (similar to Fairfax county), or cap residential to \$200, and \$1000 for business solar (similar to other jurisdictions)
- b) PWC participate in the new initiative launched by the Solar Energy Industries Association and the Solar Foundation called SolarAPP (Solar Automated Permit Processing) [SolarAPP - The Solar Foundation](#)

The county permit for our solar system totaled \$700. Other homeowners have been charged as much as \$1200 in county permit costs for their solar systems. These fees are exorbitant and a real disincentive.

2) Streamline and improve County codes and ordinances applied to residential solar installations

- a) Establish specific codes for residential solar installations on metal standing seam roofs
 - i) The beauty of a metal standing seam roof for energy efficiency and a solar panel installation is that the mounting system for the solar panels is clamped directly to the standing seams, with no penetrations into the roof
 - ii) PWC's codes don't adequately deal with this type of solar panel roofing system, nor with how to support the photovoltaic electric conduit on the roof
 - iii) Also, the codes assume, in the case of a fire, that firefighters will punch holes in the metal roof as they will with an asphalt shingle roof – this is not the case
- b) Establish specific codes for residential solar installations on asphalt shingle roofs
- c) Establish specific codes for residential solar installations on flat roofs
- d) Establish specific codes for ground mount solar installations
 - i) These are not “building extensions” as PWC currently calls them
- e) The international fire code which PWC is enforcing (VRC R324, IFC 605.11) should be applied more to roof-top commercial installations, rather than for private installations

- i) If an asphalt-shingle roofed home with a solar installation has a fire, if necessary, firefighters will access the roof and punch a hole in the roof *on the opposite slope* from the solar panel installation
- ii) In the case of metal roof, firefighters will open a vent on the sidewall, avoiding the roof
- iii) In general, firefighters will not engage on the side of the roof with solar panels
- iv) The currently required 3-foot-wide pathways at the roof ridge and edges only serve to reduce the energy-efficiency potential of a residential solar installation

The county's codes and ordinances applied to solar systems are onerous and mis-applied. [Section: 1 \(pwcgov.org\)](http://pwcgov.org) The processes are not designed to deal with differing types of solar system installations. Different types of roofs demand different code types, and ground mounted applications demand a completely separate category of code as well.

3) Streamline County residential solar inspection process

- a) Require complete county review completed within 7 business days of initial design/application submission
- b) Require complete county inspection completed within 3 business days of installation completion
- c) Get feedback from solar installers on what aspects of PWC process and system are confusing, cumbersome, error-prone, unnecessary
- d) Correct process system breakdowns, bottlenecks, and need for repetitive re-submissions
- e) Employ solar specialists on county staff responsible for solar installation review process

It took almost 8 weeks total for PWC county to review, inspect and approve our solar application/installation. Of this, 5 ½ weeks was to review and approve the design/application after it was first submitted, so that permits could be pulled. The issuance of permits and inspection of solar panels and electrical work, once installed, only progressed at a somewhat better pace because of extensive hand-holding and follow-up by us, the homeowners, and interventions by multiple county leaders. Some delays were caused by the installers, but the county contributed to a multitude of delays as well. These timelines and patterns are a hindrance to acceptance and expansion of solar installations throughout the county.

- 4) Establish County incentives to residents, homeowners, businesses, and builders to encourage installation of solar systems**
- a) Implement county property and sales tax exemption to homeowners for installed solar systems
 - i) 100% exemption of total system cost applied against property and sales taxes – similar to New Jersey, Florida, Colorado, Arizona, Vermont and others
 - ii) Grandfather all 2020 PWC residential solar installations
 - b) Require lenders charge inexpensive rates to finance costs of solar panel installations
 - i) We have been told that homeowners and businesses face paying up to 24% interest rates to finance the costs of a solar panel installation
 - ii) This essentially wipes out the current 26% federal solar tax rebate – which is the only current active incentive for PWC citizens seeking to install solar systems
 - c) Incentives to homebuilders for:
 - i) Building placement with full southern-facing orientation
 - ii) Solar-ready roof construction and solar-friendly roof slope – 30-45 degrees
 - iii) Installation of electrical “hooks” to make solar installation almost plug and play
 - (1) ATS (automatic transfer switch) to allow battery/generator backup power
 - (2) Solar input circuits (disconnect, panels, wires, physical mounting space)
 - iv) Incentives to banks for financing discounts to homeowners for solar installations
 - v) Energy-efficient windows, doors, attic and wall insulation
 - d) Incentives for “community solar:” duplex and multifamily building solar energy installations
 - i) Enabling Dominion or NOVEC customers in duplexes, condos, or apartment buildings to install and access shared distributed solar energy systems
 - ii) Higher-population density areas and lower-income residents benefit from lower power bills
 - e) Incentives to businesses to install their own solar systems on large building rooftops and/or existing open cleared spaces and parking lots
 - f) County rebates to homeowners for energy efficiency installations – ie: insulation added to attics and walls, better windows, better roofs

We would have installed our solar system years earlier if there had been better county and state incentives, in addition to the federal ITC established by the federal Energy Policy Act of 2005. We fortunately finally saved enough to have the wherewithal to move forward on our solar system in 2020, still without any county or state incentives. Many in the county may

desire to install solar, but can only afford to do so if incentivized with programs yet to be established. The county certainly won't achieve the goals of Board's [resolution](#) established in November of 2020 for 100% electricity from renewable sources within 15 years – by 2035 – if residents, homeowners and businesses are not induced to lower the impact to their bottom line costs. Even with increasingly better system cost reductions, solar systems are a significant budgetary investment.

5) Expand and improve County outreach for solar installations

- a) Educate homeowners on benefits and energy cost savings of residential solar systems, and county and state incentives for installing a system
- b) Educate businesses on benefits of solar installations, and county and state incentives for installing a system
- c) Educate industry on county codes and inspection process
- d) Establish “Solar Ombudsman” on county staff for resident, homeowner, business, and industry contact

The county employs very few professionals with experience in solar, information is hard to find, and nothing the county publishes highlights the benefits of installing solar.

6) Endorse State incentives

- a) Ensure a PWC legislator sponsors or partners for passage of Virginia state SREC (Solar Renewable Energy Credit) program legislation during the 2021 General Assembly
 - i) For every megawatt-hour a solar system generates, homeowner is credited with one SREC. Earned SRECs can then be sold on a market to utilities to help them meet state RPS (Renewable Portfolio Standard)
 - ii) A 10 kW facility generates around 12 SRECs annually
 - iii) Washington, DC SREC program currently pays homeowners \$425 for every MWh SREC. States all around Virginia participate in SREC markets: Kentucky, West Virginia, Pennsylvania, Maryland, Delaware, New Jersey, and others
- b) PWC support implementation of State income tax credit – 25% of solar system cost or \$5,000 to homeowner, whichever is less
 - i) Similar to New York

- c) PWC support implementation of State income tax credit to homeowners for installation of energy storage technology
 - i) Rebates of \$250/kWh up to 5 kWh = \$1250 tax credit for investing in energy storage capability
 - ii) Similar to California
- d) PWC implement and support incentives to county businesses for design/build of state managed solar farms on existing open rooftops, open clearings – no clearcutting of trees

The SREC program and tax credits for solar and storage systems can be game-changers for many people who want to pursue solar. By advocating legislation for these programs, PWC will achieve significant advancement of its renewable energy goals.

7) Controlled and incentivized solar farms

- a) PWC enforce use of only existing open cleared spaces for solar farm installations
 - i) No clear-cutting of trees for solar farms
 - (1) Loss of existing trees contributes to increased atmospheric carbon dioxide
 - ii) Restrict Dominion, other utility providers and landowners, when establishing solar farms, to the use of only existing open and treeless land (cleared farmland or open fields), or existing impervious surfaces such as government owned parking lots, big box store and warehouse rooftops
 - iii) Do not permit introduction of new impervious surfaces for/with solar farm installations
- b) PWC sponsor incentives for agrivoltaics – merging solar power farms with agricultural farming (*See multiple scientific articles on agrivoltaics at the end of this document*)
 - i) Reward landowners/businesses to grow crops, pollinator wildflowers, and pasture grass under elevated solar panels
 - (1) Retain and better utilize open farmland to produce multiple potential agricultural revenue streams
 - (2) Land productivity for farming under agrophotovoltaic systems increases by 160%
 - ii) Establish county grants to partner with beekeepers, sheep and goat flock owners, and crop farming businesses to work, produce and generate revenue from the agricultural land under and around elevated solar arrays.
 - iii) No clear-cutting of trees or introduction of impervious surfaces permitted under and around elevated solar array – land and soil is saved

PWC can't afford to ignore the critical greenfield and rural resources it must protect. Solar farms erected on existing impervious surfaces, or combined with agricultural uses on existing

open land, can be a way to preserve our county's tree cover while at the same time incentivizing multiple and appropriate revenue-generating uses of open spaces.

Not only will solar process improvements and incentives such as these contribute to accelerated renewable energy installations throughout the county, they will also cause significant growth for high-paying jobs in industries such as construction, installation, operations, manufacturing, and supply chain.

Access Wood MacKenzie report here:

[US renewable energy policy scenario analysis | Wood Mackenzie](#)

<http://go.woodmac.com/webmail/131501/1482479610/f6188535f2fb14a603eda16ad3b2ec2a9641c2897cb3fbae78ee9928c5a7c5ea>

The following article is long, but provides a good overview of some things which must be considered if the state of Virginia and PWC are to ensure that residential solar is easier and more attractive for homeowners to achieve:

[Long-sought changes to rooftop solar laws offer a new vision of Virginia's electric grid | News | princewilliamtimes.com](#)

These articles clearly document the multiple benefits and successful implementations of agrivoltaics: solar and agricultural farming on the same open land:

[Agrivoltaics: merging solar power with farming could help solve our energy and food needs - Richard van Hooijdonk Blog](#)

[Pollinator-Saving Solar Panels: Good for Farmers, Good for Business \(triplepundit.com\)](#)

[Solar Panels Pair Surprisingly Well With Tomatoes, Peppers and Pollinators \(treehugger.com\)](#)

[How Solar Panels Could Help Save Struggling Farms | HuffPost](#)

[Got Sheep? Want A Solar Farm? | College of Agriculture and Life Sciences \(ncsu.edu\)](#)

[Don't eat your solar O&M costs — leave it to those with four legs \(solarpowerworldonline.com\)](#)