

## Bacon's Rebellion

Reinventing Virginia for the 21st Century

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# Solar Co-Ops: Competing through Innovation

Posted on May 23, 2016 by James A. Bacon | 13 Comments

*by James A. Bacon*

Solar co-ops are popping up all around Virginia, as they are around the country. The concept is simple: Individuals who want to install solar power on their houses band together to select a single contractor to install their solar systems, saving up to 20% to 30%.

The Virginia Solar United Neighborhoods ([VA SUN](#)) website lists open co-ops in Northern Virginia, Richmond and Farmville and closed co-ops in nine other Virginia locations.



In an era of fast-improving solar efficiency and near-zero interest rates, the economics of residential solar look attractive. VA SUN advises that nine- to twelve-year paybacks (including the 30% federal tax credit) are typical. That implies a relatively low-risk return on investment in the neighborhood of 7% to 9%, which is better than most people can get parking their money in bank CDs or U.S. Treasuries and a lot less risky than investing in the stock market.

**Bacon's bottom line:** While I'm skeptical of promoting solar energy production in Virginia through mandatory Renewable Portfolio Standards, I'm a big fan of innovators who improve the economics of solar and drive down the cost of installation. I could see myself giving serious thought to installing solar on my own house. (A decisive factor for me would be determining how many trees I'd have to cut down. Tree-cutting services charge a small fortune!)

Residential solar accounts for such a small percentage of the electric-generating capacity in Virginia that it doesn't pose a problem for the stability and reliability of the electric grid. Yet. That could change as rooftop-solar becomes more ubiquitous. Solar homeowners and businesses like selling surplus electricity into the electric grid, and they like drawing upon the grid when the sun isn't shining. They also like not paying a fair share of the cost of maintaining the grid that guarantees them a 24/7 supply of electricity. At some point rooftop solar could extend to so many customers that would undermine the financial integrity of the electric grid.

We're nowhere near that point now, but we could get there. It would be prudent to start thinking now about what a next-generation grid capable of accommodating hundreds of thousands of solar rooftops would look like, and what would be reasonable for solar households to pay to support it.

— JAB

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**13 RESPONSES TO “SOLAR CO-OPS: COMPETING THROUGH INNOVATION”****VaConsumer** | [May 23, 2016 at 10:22 am](#) | [Log in to Reply](#)

Solar truly struggles in Virginia due to public policy shaped by our utilities to ensure that it only develops slowly. On one hand we are told that it needs to develop competitively on its own. On the other, it competes with fuels like coal that have been getting millions of taxpayer dollars of support to both coal companies and utilities. That money hasn't bolstered employment or income in coal areas, it's supported investors and corporate leadership who take most of the money somewhere else. If even a portion of that money had been invested in solar, we might have jobs for those displaced by the decline in coal.

States with mandatory renewable standards are able to generate financing to support solar. Our voluntary standard doesn't. Also, our rules for net metering are designed for only large companies, not residences. The popular message is that solar isn't competitive but the truth is that our policies have created that situation. Adding to it the charges that solar users are selfish, taking when they want, giving when they want (even if it's not needed) and not contributing to the grid, and solar cannot thrive. There's no consideration of the expenses it makes unnecessary, saving others money.

It's a shame that we accept this spun story for energy in Virginia and that we have failed to create a level playing field for “all of the above” like many think Virginia supports.

**Acbar** | [May 23, 2016 at 11:33 am](#) | [Log in to Reply](#)

I don't disagree there are things Virginia could do better, even much better, to promote solar distributed generation; but the larger question is subsidies at the expense of other electric ratepayers. Tax credits are a subsidy; net metering is a subsidy. These are justified as a temporary boost to “get solar started” — but now solar d.g. is cost-competitive without the subsidy. So why go there? Yes, we're competing with states like NC that are continuing to

subsidize solar d.g. more than VA, so all the 'action' is in NC because that's where the solar equipment sales are booming and homeowner interest is — but is that a sufficient reason for VA to try to steal the 'action' from NC by enacting larger subsidies? Envy alone isn't enough to spend millions on this! And, you talk about net metering — that's not only a huge subsidy, but also one that's economically unwarranted and poor policy and nearly impossible to get rid of, unlike a tax credit. So who benefits from all these subsidies? The homeowner without a south-facing roof? The homeowner who can't afford the up-front investment? The renter who doesn't own the roof? The apartment-dweller? No, it's only a few who can reap the benefits from solar d.g., and there's darned little reason to subsidize those folks' electric bills *at the expense of other electric ratepayers who don't benefit*. I can agree with you, VaC, that subsidizing a start-up business to get past start-up obstacles can make good sense and good policy, but what is the justification for subsidizing solar d.g. so heavily NOW?

**TBill** | [May 23, 2016 at 10:59 am](#) | [Log in to Reply](#)



Just checked my HOA rules...and surprise, we are allowed to install solar panels and shingles on the front of the house if and only if that's the only place where the sun is (our case). We are not allowed to remove trees for solar, but some tree trimming is OK. Nobody here seems to be going solar. I'd need a new roof first. We get so much leaves and junk falling off the trees, I wonder if that's a problem. I have mild interest in a small array maybe solar shingles on the garage.

I feel Virginia's voluntary renewable standards is the correct approach. We have enough problems with the EPA mandates without committing to another self-inflicted mandate.

**Acbar** | [May 23, 2016 at 11:47 am](#) | [Log in to Reply](#)



Jim, I disagree that grid instability is a potential problem, here. PJM has said repeatedly it can handle a higher percentage of solar than seems at all likely in the next couple of decades; and that's enough lead time to deal with more growth if it occurs. At the distribution level, solar d.g. may be a challenge for the local utility, but it's hardly an insurmountable challenge, and it comes with some benefits for the distribution system too.

Dominion may be telling you they are scared of all this solar stuff, but that sounds like unfamiliarity at worst, and more likely, somebody's afraid of being tossed into that briar patch: Why, indeed, should Dominion object to being 'forced' to spend lots of capital investing (at a regulated rate of return) in improvements to its local distribution system? These are improvements, by the way, which will help with much more than merely accommodating solar distributed generation.

**[James A. Bacon](#)** | [May 23, 2016 at 12:52 pm](#) | [Log in to Reply](#)



For the record, here's what I said: "Residential solar accounts for such a small percentage of the electric-generating capacity in Virginia that it doesn't pose a problem for the stability and reliability of the electric grid. Yet. That could change as rooftop-solar becomes more ubiquitous."

Clearly, there's a long way to go before we reach the point where solar might threaten the reliability of the grid. But at some point — and I'm not clear what that point is — it could become a threat. Is it 30% like PJM suggests? Or does that figure apply only to the transmission grid, not the distribution grid? I don't know. I haven't posed the question to Dominion. What I'm suggesting is that NOW is the time to start *thinking about* a next-generation grid to make sure the proliferation of solar doesn't become a crisis in the future. I thought that such a suggestion would be non-controversial to the point of banality.

**Rowinguy** | [May 23, 2016 at 12:02 pm](#) | [Log in to Reply](#)



Want to find out if solar makes sense on your roof?

<https://www.google.com/get/sunroof#exp=7.1&p=0>

I was somewhat surprised to find out that it would be a bad investment for me, although other houses on my street might do fine by adding solar.

**Acbar** | [May 23, 2016 at 12:31 pm](#) | [Log in to Reply](#)



Thanks for the link! But I'm in NoVa and got the message, "Sorry, Project Sunroof hasn't reached that address yet."

**James A. Bacon** | [May 23, 2016 at 12:58 pm](#) | [Log in to Reply](#)



Cool. The program estimates I would have a 13-year payback. That's marginal. On the other hand, the program underestimated my electric bill, so maybe my actual savings and ROI would be better.

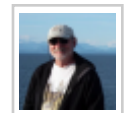
**Rowinguy** | [May 23, 2016 at 4:30 pm](#) | [Log in to Reply](#)



One thing that this program seems to assume is that every roof is new; that is, during the life of the solar panels on the roof, there will never be a need to re-roof the building. My house is 21 years into a 25 year roof. If I put up solar this year, I'd just have to have it taken off and re-installed sometime in the next 5 years, or at least that's what I believe would need to be done and that would then be an unaccounted for cost.

Maybe my assumption about installing new shingles is incorrect. Does anyone know for sure?

**LarrytheG** | [May 23, 2016 at 12:48 pm](#) | [Log in to Reply](#)



re: subsidies:

"Mercury contamination could do big harm to migrating birds, William and Mary professor finds"

” The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields ”

” Removing coal ash from all 14 Duke Energy sites could cost \$10 billion”

are these subsidies also?

**CleanAir&Water** | [May 23, 2016 at 5:10 pm](#) | [Log in to Reply](#)



Yes, Larry is right about the unpaid for environmental bills and health costs. For coal sourced electricity they have been tallied at up to \$.20+/kwhr in a study at Harvard. There are also substantial direct and tax subsidies from the State of Virginia and the federal gov. too. All of this support for the fossil industries continues and in dollar amounts exceeds any solar and wind subsidies by a mile. Then we have the CEO's extra compensation when the companies go bankrupt! I for one think the record is troubling. I thought pay raises came with good jobs, well done!

“The salary of Arch Coal’s CEO increased from \$3.9 million in 2012 to more than \$7.3 million in 2014. The company went bankrupt and laid off 230 workers in 2016. Its top executives even received \$8 million in bonuses just three days before the filing. It happened again with the CEO of Peabody Energy, the world’s largest private coal company. Gregory Boyce saw a salary increase from about \$9.4 million in 2012 to \$11 million in 2014, the same year the company wanted out from its collective bargaining agreement with the United Mine Workers of America, which provided health coverage for retired mine workers.”

About on-site solar ... now that prices are getting low enough to make it worthwhile. Virginia has so little solar we have lots of time to get the grid connections and a rate regulation redo right before that rooftop solar causes any grid trouble. There are also enough other states already moving ahead with the redo that we can learn from them.

Finally ... one of those rule changes ought to be ... allowing neighborhood solar. NREL says about 25% of Virginia roofs are suitable for solar. The other 75% could join a “solar gardens” down the street and save their trees. Every household could buy a few panels in the garden and a billing program at the utility could give them credit for their solar panel’s production that month. We can’t do that in Virginia today.

**Peter Galuszka** | [May 24, 2016 at 10:19 am](#) | [Log in to Reply](#)



First,

Virginia needs a mandatory renewable portfolio standard for renewables. not having one lets big power producers like Dominion get away with their sluggish pace for solar and wind with claims that it is “not reliable,” which is remarkable for its self interest.

Of course no one factors in the human and ecological costs of coal. The Appalachian coalfields have among the highest cancer rates in the country. Deep mines are dangerous as Massey and Upper Big Branch show. Mountaintop removal is enormously destructive. One would think that the riches from coal would have stayed in the mountains but they have not. They are in spots like

Richmond at the Virginia Museum of Fine Art.

And, we hear the whining about the plight of coal. It has been taken down by market forces namely fracked gas. Bristol-based Alpha Natural Resources is bankrupt primarily because on a buying binge for steel- making coal (It bought Massey's metallurgically-rich reserves for \$71 billion in 2011). The game was to sell to China's booming economy but it isn't booming any more.

So, ANR made a bad business decision and Obama and regulation get blamed. The firm still managed to put \$500,000 into Virginia political campaigns, has shed responsibility for worker pensions and benefits and its executives have managed big bonuses.

Yet we readers at BR are again treated to the familiar argument that renewable is only OK is it passes strict free market tests. No rules or subsidies are good,. Yet coal and nukes got zillions through them.

**TBill** | [May 24, 2016 at 10:39 am](#) | [Log in to Reply](#)



According to the folks at Cooper Center (which LarryG quotes) Virginia utilities have committed to 15% renewables by 2030, whether by actual in-state construction or by buying from out-of-state (cap-and-trade credits). Therefore I assume, as does Cooper Center, that this 15% is already "baked-in" to Virginia's EPA clean power plans.

Where we stand right now is the Virginia environmental groups want to bump this voluntary mandate up from 15% to 30-40% renewables by 2030 (by purchasing cap-and-trade renewable credits) rather than building any in-state power plants.

Bottom line is Virginia's 15% voluntary renewables by 2030 seems almost a mandate. If the Clean Power Plan is eventually adopted, we will be forced to commit to that, which it sounds like we already have.