



How to Pay for Solar

November 19 2018



Ways to Do Solar

- Yourself (10 year payback)
- Non-profits (5 year payback via LLC)
- Business (50% back first year, rest over 5 yrs)
- Municipalities (no cost RFP)
- C-PACE
- Opportunity Zone investment

Background

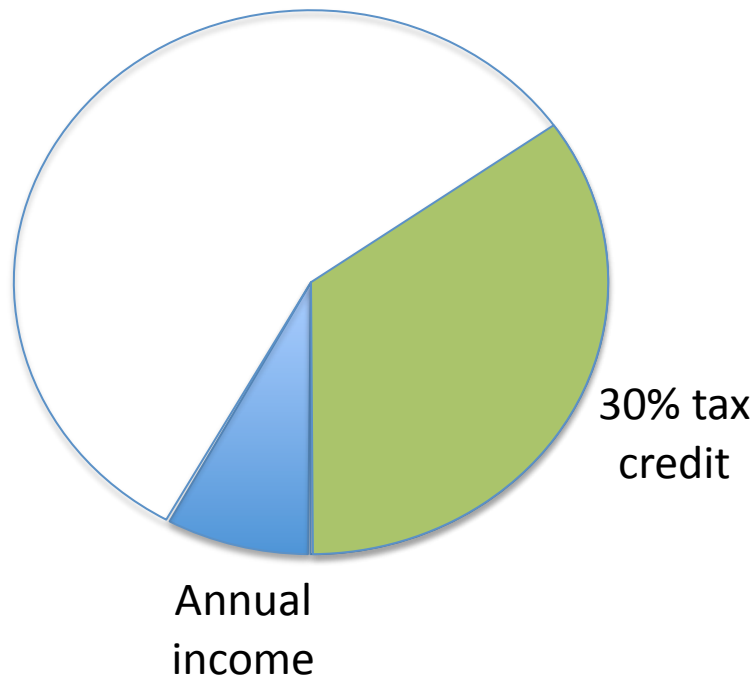
- 2009: Solar was \$10/W installed
- 2018: Solar cost is 4x lower
 - ~\$2.50/W for residential
 - ~\$1.50-\$2/W for large commercial
- Tariffs: Panel price typically $< 1/3$ job cost, so 30% tariff is only ~10% cost increase
- Investment Tax Credit:
 - 2009 - 2019 federal tax credit 30%
 - 26% in 2020, 22% in 2021
- Depreciation: Current tax law allows 100% depreciation in Year 1



Caveats

- Factors affecting cost and payoff time:
 - Install angle, roof rack vs. ground rack mount,
 - Orientation, shading from buildings or trees,
- I am not a lawyer or an accountant
- Tax laws will/can change. Stay engaged!!
- This presentation and a description are at <http://solar.the-mcelroys.com>

Residential Solar using Tax Credit



- Annual income/savings from lower electricity bill
- Investment tax credit: 30%
 - Assumes enough tax to take credit
- ~10 year payoff time
- \approx 9% tax-free investment
- Keep system <10 kW to avoid 'standby fees'

DO THIS!! It is easier than you think, system will take 1-2 days to install, and after paying off you have free solar electricity!!!





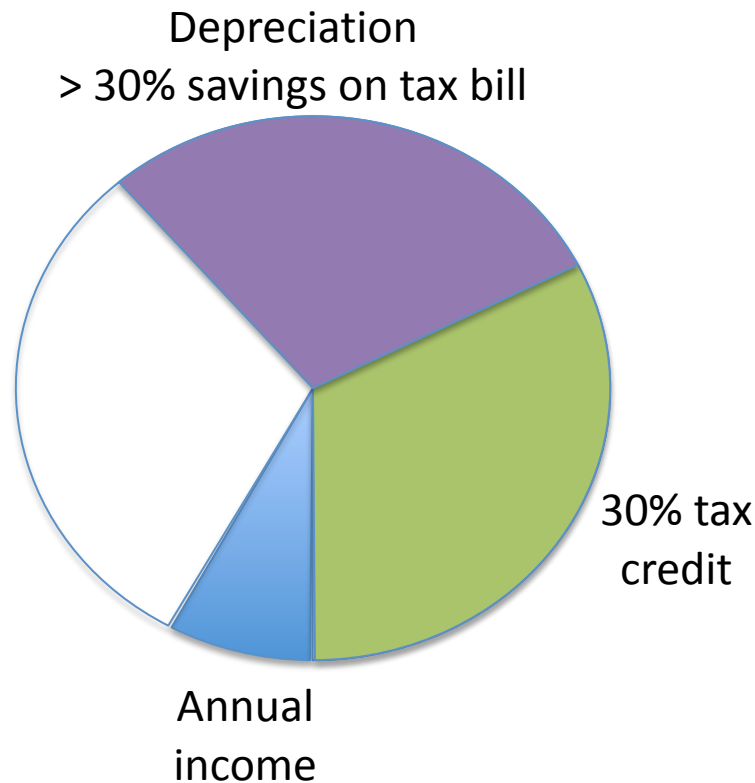
Solar United Neighbors

- Non-profit runs solar co-ops to install solar
 - <https://www.solaruniteneighbors.org>
- Since 2014
 - 5.2 MW of rooftop solar installed capacity in VA
 - Facilitated >720 solar installs
 - \$13M in sales to VA-based contractors
 - 29 build purchase programs in VA
 - VA 25-year carbon reduction: 136.1 M lbs CO₂
 - Built a network of over 8,000 solar supporters

Payoff Times could Shorten if...

- **Solar Renewable Portfolio Standards (RPS)** were set by Virginia legislature
 - Firm goals for utility to meet as in MD, DC, etc
 - Example RPS goals: 10% in 2025; 15% in 2030; 20% in 2035 (VA only at about 2% now)
- If utility is unable to make goal, Producers/ Individuals sell extra solar power via **Solar Renewable Energy Certificates (SREC)**
One SREC = One Megawatt (MW)

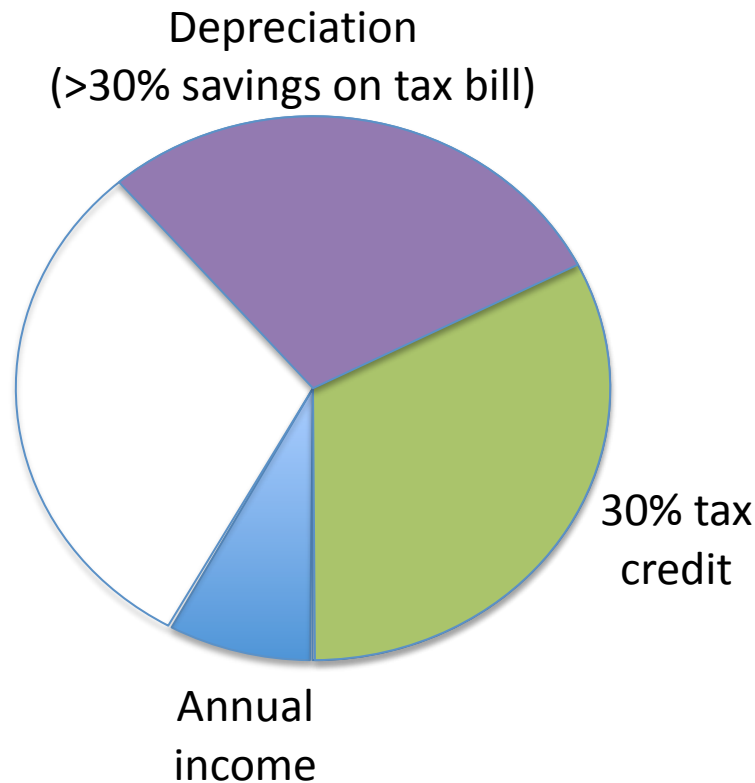
Commercial Business Solar



➤ **60% of the system could be paid off in the first year.**

- Annual income/savings on business electricity bills
- Investment tax credit: 30%
 - Assumes enough tax liability to take credit
- Depreciation: additional savings of >30% on tax bill
 - Can feed forward
- Payoff time: ~ 5 year
- ~15% tax-free investment

Solar on Non-Profit



Investor can get >60% of their money back in first year.

- Individual or LLC buys panels; owns for ~5 yrs
- Cost savings for electricity paid from non-profit to Individual via Power Purchase Agreement (PPA)
- Investment tax credit: 30%
 - *Only against passive income*
- Depreciation
 - *Only against passive income*(Both can be fed forward 20 years)
- ~5 year payoff time
- Panels can be donated to non-profit after payoff

Example at Norfolk Academy

- \$1M solar array using LLC of parents
 - \$1.49/W = 670 kW array
 - LLC owns panels first 6 years; parents fully paid back after 6 years
 - School pays LLC for electricity via PPA (Power Purchase Agreement)
 - School gets solar with no money out-of-pocket
- First building done May 2018
- Lower and Middle school install started Sept 2018









Lower school install started Oct 22





Simulation of Complete Norfolk Academy Install



Non-Profit Notes

- Pros:
 - Solar on non-profit with no upfront cash outlay
 - Non-profit never pays more than they are paying now for electricity
 - Investors get their money back in 5 years
 - Non-profit gets free solar panels in 5 years
 - Anyone with passive income gets the tax benefit
- Cons:
 - *Requires passive income to work*
 - Only owner of panels can take tax credit

Advice

- Be patient – it took a few years to get this implemented at Norfolk Academy
- Work through a spreadsheet and timeline with your numbers
- Make the agreement as simple as possible
 - Figure out what is really important
- Timing is important
 - Late year install will get tax credit sooner but have low initial production
 - Spring install will have high initial production but have to wait a year for tax credits

Commercial Solar Financing

- Many solar companies provide solar install at no upfront cost
- [Suntribe/Secure Futures](#), [SolarCity](#), [SunPower](#), [REEL](#), etc.

(Payoff time longer; these are for-profit companies.)

- Banks: [Virginia Community Capital](#) (Solar loans)
- Non-profits also doing this: e.g., RE-volv, <https://re-volv.org>

VA Cities' Solar RFP's

- No out-of-pocket cost for city
- Virginia municipal installations via RFP
 - [City of Richmond Public Schools RFP](#)-- 2.6 MW PPA with Secure Futures, 10 schools
 - [Arlington RFP](#)
 - [Harrisonburg RFP](#)
 - [Middlesex County—SunTribe](#)
 - [Albermarle County—Secure Futures, 6 schools](#)
 - [Bath County](#)
 - [Lexington—Secure Futures](#)
 - [Augusta County Public Schools](#)-- 1.8 MW PPA with Secure Futures over 7 schools

Why Not Us?

- Why are cities in Hampton Roads not issuing RFPs for solar installs on municipal buildings??
- We could use Arlington's existing RFP
- No cost to city
- Payoff time will go up after end of 2019

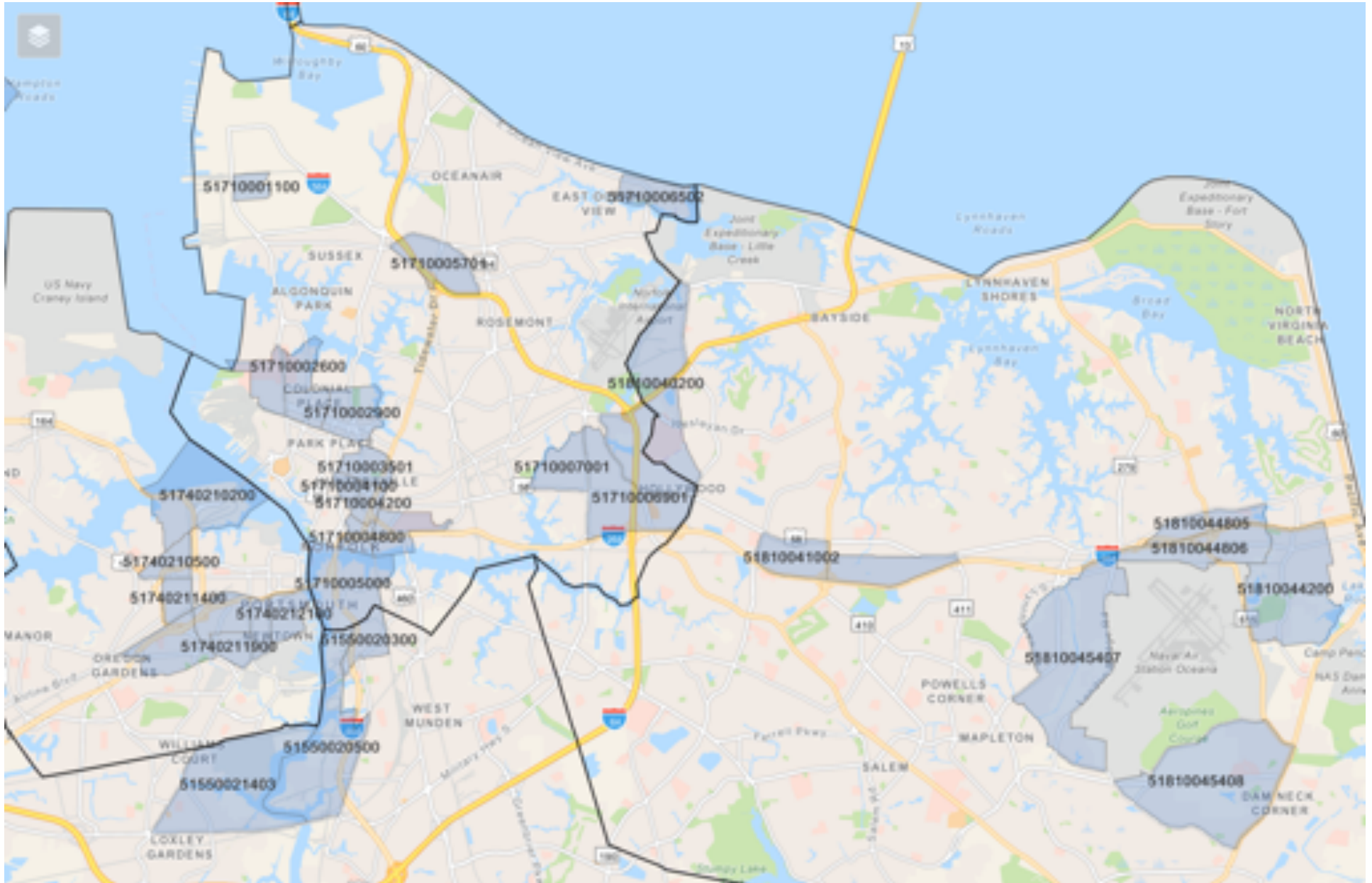
C-PACE

- Commercial Property Assessed Clean Energy Financing
- Virginia enacted C-PACE in 2009
 - Not Residential PACE
- Owners receive up to 100% project funding; pay back as line item on property tax bill
- PACE nationally: 1575 projects, \$650M, 9700 jobs created
- Arlington C-PACE launched Jan 2018
- Why not Hampton Roads?????

Qualified Opportunity Zones

- Gov. Northam announced July 2018
- Three federal tax incentives to encourage investment in low-income census tracts
 - Deferral of gain on the sale of a capital asset
 - Reduction of the future taxable gain if certain holding periods are met
 - Tax-free appreciation in O-Fund investment if holding period met
- <http://www.dhcd.virginia.gov/index.php/opp-zones>
- <https://www.pbmares.com/tax-benefits-opportunity-zones/>

HR Qualified Opportunity Zones



Success stories

- CDs with Virginia Community Capital for solar



Unity Renaissance Church

- Worked with Convert Solar and installed solar on Chesapeake church via PPA
- 66 Solar Panels, 22 kW, production [link](#)
- 40%-50% of facility consumption



RVA Solar Fund

- Richmond Community Foundation funding grants for non-profits to go solar
- <http://www.rvasolarfund.org>
- We could do something similar here with Hampton Roads Community Foundation



What Can You Do

- Install your own solar
- Put solar on a non-profit and get your money back in 5 years
- Form an LLC to solarize your favorite non-profit
- Encourage anyone you know with passive income to use this method to install solar
- Loan money to an installer to put in solar
- Ask your city and school board to install solar via RFP *in the next year*
- Ask your city to implement C-PACE

More Info

- <http://solar.the-mcelroys.com/>
 - Template LLC
 - Template PPA
- <http://www.the-mcelroys.com/>
- [Solar sizing on Norfolk emergency shelters](#)
- [Maps of solar prospects in Norfolk OZs](#)
- <https://www.solarunitedneighbors.org/virginia/>
- <http://solarizeva.org>
- <https://solarpowerrocks.com/virginia/>
- <http://www.solar-nation.org/virginia>
- <http://www.pacealliance.org>

