Solarize Fairfax County Info Session

Agenda

Welcome

Remarks by Chairman Bulova

Remarks by Supervisor Gross

Presentation by LEAP

Q&A Session

SOLARIZE FAIRFAX COUNTY

www.solarizefairfaxcounty.org

An renewable energy initiative of the nonprofit Local Energy Alliance Program (LEAP), the Northern Va. Regional Commission, and local partners

nvrc Northern Virginia Regional Commission

leap

COUNTY OF FAIRFAX 1742 VIRGINIA

What is LEAP?

Founded in 2009, the mission of the Local Energy Alliance Program is to lead the effort to equip Virginia buildings with energy efficient and renewable technologies.

Our overarching goals include cost savings, local economic development, and energy sector decarbonization.

Come see us at 608 Ridge Street in downtown Charlottesville or in the Merrifield area of Fairfax County.

www.solarizenova.org

leap
local energy alliance program

What is NVRC?

The Northern Virginia Regional Commission (NVRC) is a regional council of fourteen member local governments in the Northern Virginia suburbs of Washington DC. According to Virginia's Regional Cooperation Act, NVRC is a political subdivision (a government agency) within the Commonwealth.

www.novaregion.org

nvrc
Northern Virginia Regional Commission

leap
local energy alliance program

Local Partners

City/town/county staff and/or local advocates host events and help promote. Spring, 2017 partners are

- www.SolarizeFairfaxCounty.org
- www.SolarizeCityofFairfax.org
- www.SolarizeFallsChurch.org
- www.SolarizeVienna.org

www.solarizenova.org

What is Solarize NOVA?

An clean energy initiative organized by the Northern Virginia Regional Commission (NVRC) and the Local Energy Alliance Program (LEAP).

Solarize NOVA is a one-stop-shop for community members to learn more about solar power options for their homes and facilitate the installation and financing of their own project.

Our 1000 rooftop challenge pushes us to educate, empower, and engage our community.

www.solarizenova.org

Why sign up for a Solarize program?

It's a good deal – and it's a lot easier than going it alone

- Vetted contractors - experience, certifications, warranties
- Discounted, fixed pricing (bulk-purchasing price, competitively bid)
- Turn-key, standardized package
- LEAP staff do the all the homework and support you through the process

Looks great on a fancy house

www.solarizenova.org

local energy alliance program

Solarize NOVA Results

As of March, 2017, 104 contracts totaling 767kW of electricity and valued at over $2.57 million have been signed.

- We hope to make it over 1000kW (1MW) with this campaign.
- At the end of 2016, Va had 238MW solar installed.

Looks great on a modest house

Who Can Sign Up?

- SolarizeNOVA, Spring, 2017 is for residents, organizations, and businesses in Fairfax County, the cities of Fairfax and Falls Church, and the Town of Vienna.
- If you live outside of this area, SolarizeNOVA can still serve you. Please contact info@solarizenova.org for more information.

Commercial and institutional properties too!

www.solarizenova.org

local energy alliance program

How it Works

Everyone

- **Step 1: Sign up at www.solarizenova.org (or localities' sites)**
- LEAP staff performs satellite assessment and contacts you with results
- Submit a recent electric bill
- Schedule an energy efficiency consultation (optional)
- Attend a Solarize program info session (optional)

Then, if your property is a good candidate

- Consultation by installer who will assess your site and develop a proposal
- Proposal approval: sign contract with installer
- Permits, installation, utility connection, inspections
- Enjoy watching your meter spin backwards!

Energy Efficiency

Energy efficiency typically is the most cost-effective, most available clean energy resource. A good PV installer will always encourage you to pursue efficiency first – so that you are “renewable ready”. LEAP promotes and facilitates EE improvements with

- Affordable energy audits for your home or business
- Referrals to qualified contractors

Reduce & Produce!

leap
local energy alliance program

Energy Efficiency Consultations

A LEAP energy coach visits your home/business for an “energy audit”.

Residential:

- 2-3 hr diagnostic audit with blower door test, infrared scan, and investment-grade report: starting at $425
- Hourly consulting also available
- Low-cost, walk-through audits return in September, 2017

Commercial:

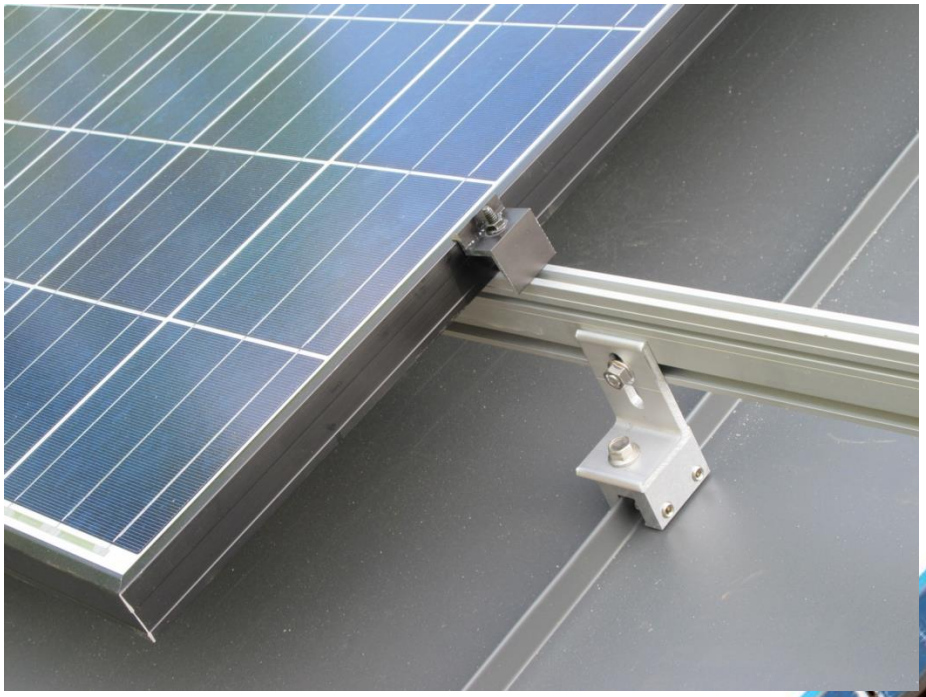
- LEAP can provide referrals to local contractors

www.solarizenova.org

Solar Basics

- Panel installation generally takes 1-3 days, but the entire process (including system design, permitting, interconnection) takes 6-12 weeks.
- System Components:
  - Photovoltaic Panels
  - “Balance of System” equipment
    - Mounting hardware
    - Inverter
    - Cables
    - Meters
- Productive life of 25+ years with minimal maintenance
- Photo = Light; Voltaic = Electricity
  - When light strikes the silicon semiconductor, an electron is knocked loose.
  - The electrons then flow along a circuit and are directed to an inverter.

Roof Mounts



www.solarizenova.org

Panel Installation

www.solarizenova.org

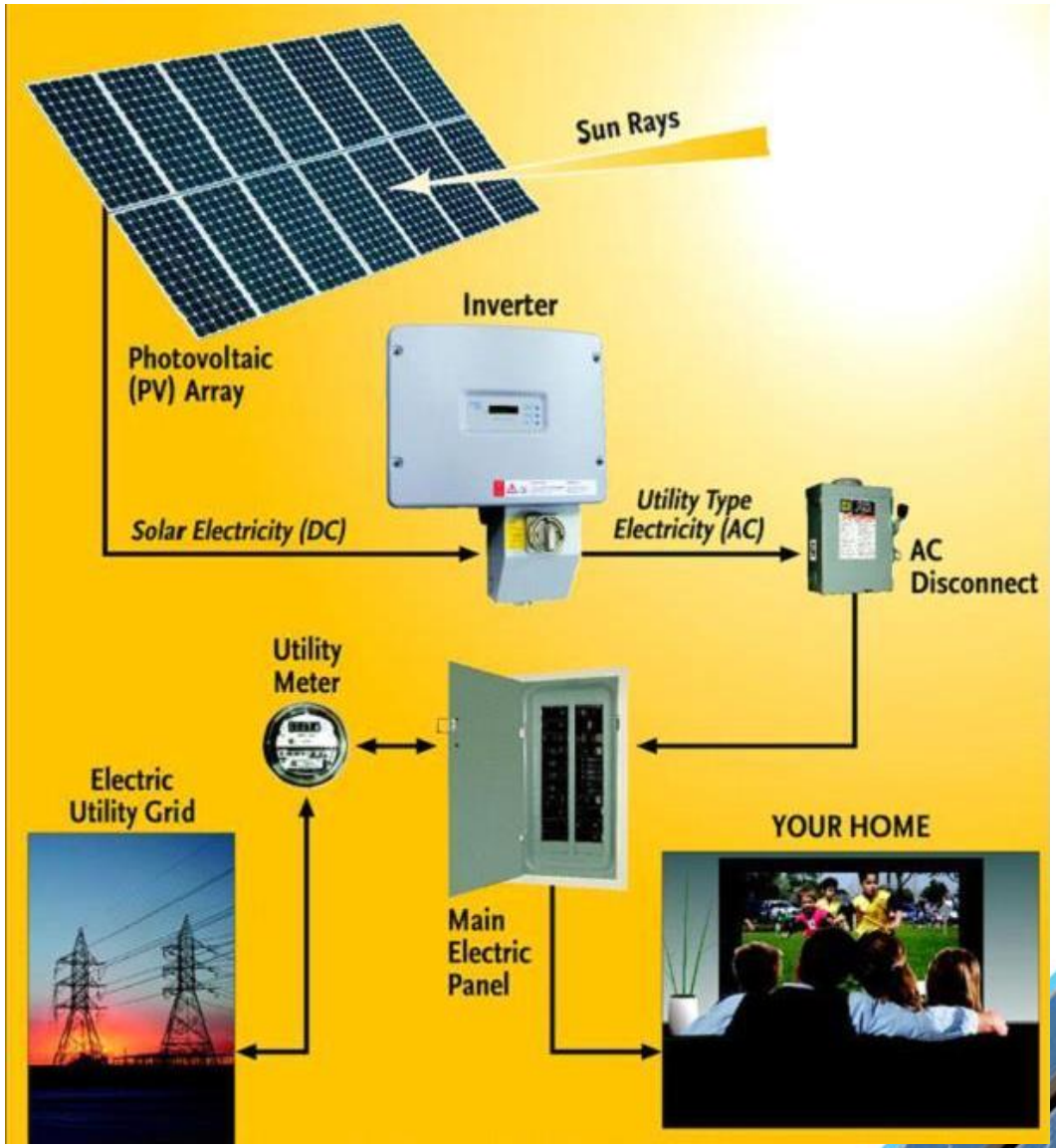
The Inverter

shown: SolarEdge string inverter

- Converts Direct Current (DC) electricity from solar panels into Alternating Current electricity, which powers your home.
- When shading conditions exist, installers may recommend microinverters or DC optimizers in lieu of central inverters, which allow arrays with some shading to increase energy production.

SOLARIZE

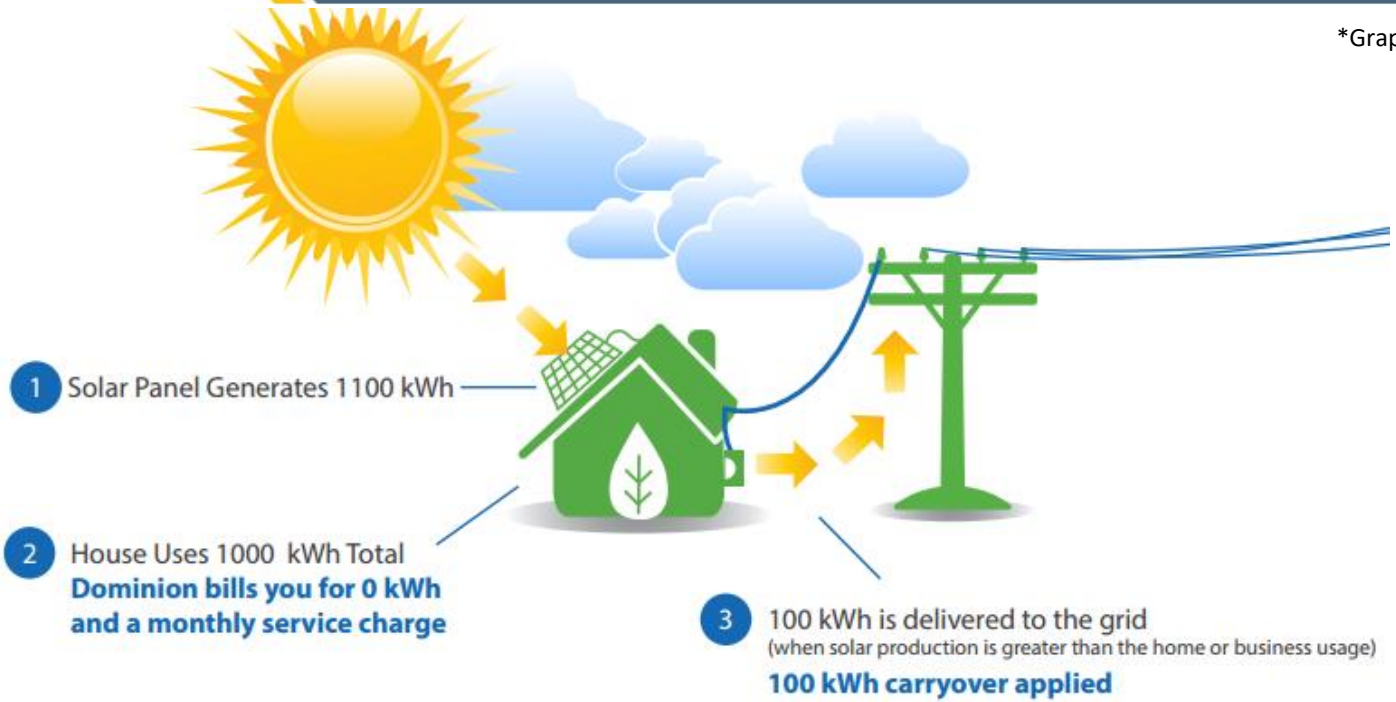
Put it all together…



leap
local energy alliance program

Net Metering

*Graphic from Dominion Power



What is Net Metering? a metering and billing agreement between a utility and a customer that facilitates connecting PV systems to the power grid. A new meter is installed that measures two-way flow of electricity. The energy your system makes is first used on site. When your solar system is making more electricity than you are using at the time, the excess electricity is recorded by the meter as it flows back into the grid and is credited against future electricity use.

www.solarizenova.org

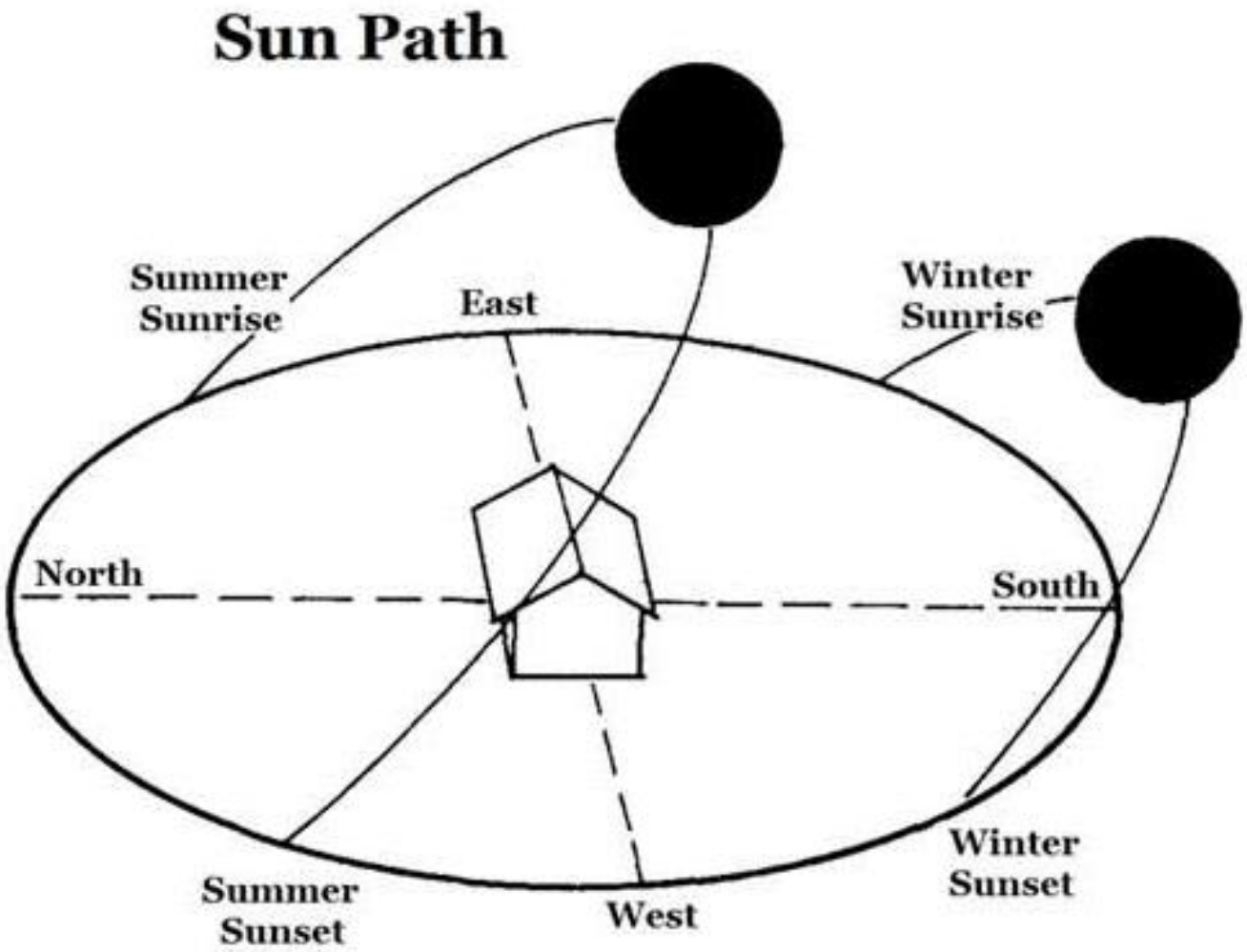
leap
local energy alliance program

Space Requirements

- The size of a typical (60-cell) residential solar panel today is about 3-1/2′ x 5-1/2′ - or just under 18 sq. ft.
- These vary in “rated output” from 200 to 300 watts. Jumbo (72-cell) panels are about a foot longer and produce 300-340 watts.
- Using 285W panels, a typical system in the 5,000 watt range would require 18 panels – creating a total array of about 324 sq. ft. (18’x18’)
- The “average” US home would require a well-sited 10kW system to supply all of its annual electricity consumption.

www.solarizenova.org

Orientation



Tax Credits

Federal Tax Credit:

- 30% of total install cost - credited to your federal income tax bill
- This is a credit – not a rebate. If you don't owe federal income tax, there's no benefit. Typically results in payments you've already made being returned.
- One's credit balance can rollover to subsequent years for up to 5 years.

SRECs

Solar Renewable Energy Certificates are a form of Renewable Energy Certificate or "Green tag". **SRECs** exist in states that have Renewable Portfolio Standard (RPS) legislation with specific requirements for solar energy. Virginia does not currently have an SREC market, so Virginians generally use the Pennsylvania market.

- 1 SREC = 1 Mwh of solar electricity
- A 10 kW installation generates around 12 SRECs annually
- SRECs are sold separately from the electricity
- Value is determined by current market: ~$5
- Installations must be certified by a state

Equipment

Panel (module):

- Standard Panels: REC TwinPeak 290 or Qcell Qplus 330-340
- US-Made Panel: Solar World SW300 or Suniva OPT300

String Inverters:

- SMA Sunny Boy TL-US 22 Series, 10-year product warranty (20)
- Fronius Primo 3.8-15.0, 10-year product warranty (20)
- SolarEdge SE3000-10000, 12-year product warranty (25)

DC Optimizer:

- SolarEdge P300-405

SunPower system: (Prospect only)

- SunPower 327 AC with SunPower microinverters (25yr product warranty)

Solarize Spring 2017 Pricing

	Roof-mounted system			Ground-mounted system	
	3-5kW	**5-10kW**	**>10kW**	**5-10kW**	**>10kW**
Standard panel	$2.55	$2.50	$2.45	$3.00	$2.95
US-made panel	$2.65	$2.60	$2.55	$3.10	$3.05
SunPower System	$3.30	$3.20	$3.15	$3.40	$3.30

Compare to national average:

"As of early 2017, it's approximately $3.00 per watt, installed."

http://solar-power-now.com/cost-of-solar/

www.solarizenova.org

leap
local energy alliance program

Sample System Economics: Cash*

System Size/panel	4kW SunPower	6kW Standard	12kW US-Made
Installed cost	$13,200	$15,000	$30,600
Cost after tax credit	$9,240	$10,500	$21,420
Annual kWh produced, yr 1	5,427	7,680	15,360
Average monthly PV "income", yr. 1	$52	$73	$147
"payback"	13.3 years	10.8 years	11.1 years

Conservative assumptions for these projections:

* All are roof-mounted systems, paid cash
* Installation orientation and angle are good – not perfect
* current electricity price/kW: $0.11 with 2% annual inflation
* SREC value: $5

www.solarizenova.org

leap
local energy alliance program

Sample System Economics: 6% Loan*

System Size/panel	4kW SunPower	6kW Standard	12kW US-Made
Installed cost	$13,200	$15,000	$30,600
Cost after tax credit	$9,240	$10,500	$21,420
Annual kWh produced, yr 1	5,427	7,680	15,360
Ave. monthly PV “income”, yr. 1	$52	$73	$147
Ave. monthly net, yr. 1	$-26.11	$-15.20	$-33.95
Ave. month net positive after year	15	10	11
20 Yr PV “income”	$15,019	$21,246	$42,492

* All are roof-mounted systems, 70% total cost borrowed at 6% for 15 yrs
* Installation orientation and angle are good – not perfect
* current electricity price/kW: $0.11 with 2% annual inflation
* SREC value: $5

www.solarizenova.org

leap
local energy alliance program

Financing Options

A Home Equity Line of Credit tends to be the best financing mechanism for most folks.

Another option: Admirals Bank Solar StepDown and FHA Title 1 Home Improvement Loans

- Up to $40K total
- Up to $25K secured and $15K unsecured
- These solar loans can be combined to finance up to 30% of your solar system at 0% over 18 months and the remaining 70% (capped at $25,000) can be financed with fixed interest rates between 4.95% - 9.95% over 20 years.
- Funds dispersed before project begins.

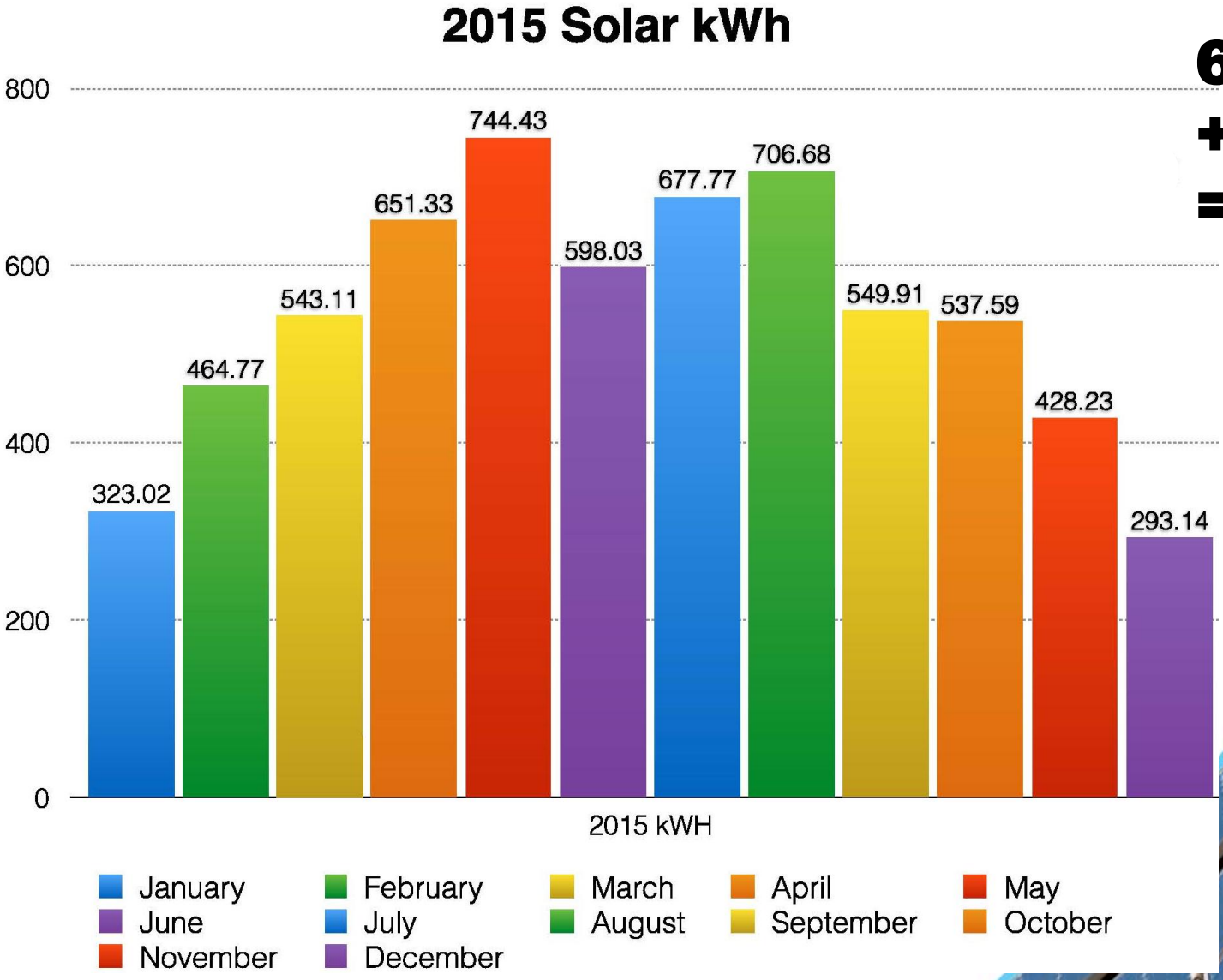
www.admiralsbank.com/renewable-energy-lending

A Happy Solar Customer: Lazaro Home

- 14 Sunpower Panels: 4.5kW system
- Paid $3.74/Watt (Solarize Leesburg 2014)
- 6,535 kWh output = $719 earned in 2015
- Installed for $16,830: $11,781 after rebate.
- 16 yr. payback: 6.25% average annual rate of return over 16 years.

www.solarizenova.org

Lazarro Family Savings



6535 kWh
+ SRECS
= $719/yr.

Continuous On-Line Monitoring

SOLARIZE

Dashboard | Layout | Chart | Reports | Alerts | Admin

Choose a site (insert at least 3 letters to search):

Grigsby Solar

Overview

Current Power	Energy today	Energy this month	Lifetime energy
4.04 kW	6.2 kWh	589.53 kWh	957.32 kWh

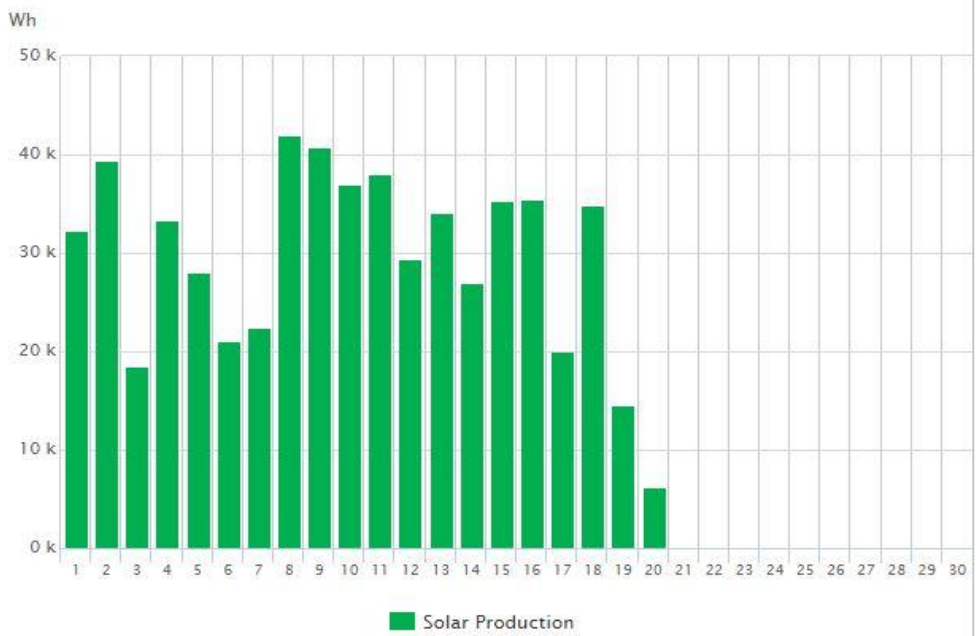
solaredge

Power and Energy

Week | Month | Year

04/01/2017 - 04/30/2017

System Production: 589.53 kWh



Site summary

Site status: ✓

Id	433556
Name	Grigsby Solar
Country	United States
State	Virginia
City	Richmond
Address	Forest Hill Avenue 3152
Installed	03/16/2017
Last updated	04/20/2017 10:56
Peak power	6.08 kWp

Weather

Partly Cloudy
67 °F
Feels like 67 °F
Wind SW, 3 MPH
Humidity 79 %
Sunrise at 06:28
Sunset at 19:51

Thursday	Friday	Saturday
84 - 68 °F Partly Cloudy	84 - 63 °F 30% Chance of Rain	70 - 57 °F Mostly Cloudy

leap
local energy alliance program

SOLARIZE

Campaign Installers

ALTENERGY

SOLAR ENERGY SOLUTIONS

ProspectSolar

www.solarizenova.org

leap
local energy alliance program

The NOVASolar Map

www.novasolarmap.com

A free new resource from NVRC: see your rooftop's potential right now….

Oakton HS

www.solarizenova.org

local energy alliance program

SOLARIZE FAIRFAX COUNTY

Sign up: www.solarizefairfaxcounty.org

Contact: info@solarizenova.org

Thank you!

nvrc
Northern Virginia Regional Commission

leap

COUNTY OF FAIRFAX
1742
VIRGINIA