

Foster Solar Workshop

Presented by:



Commerce RI
Renewable Energy Fund



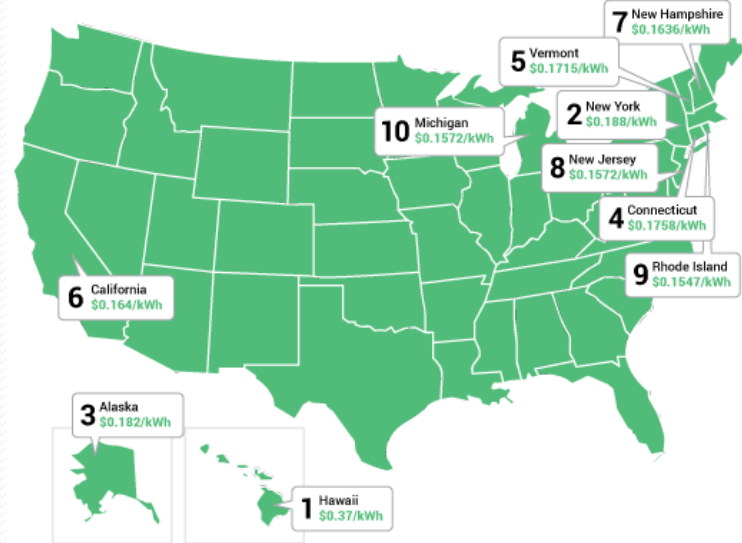
Who We Are

- **Office of Energy Resources**
 - Goal is to lead Rhode Island to a secure, cost effective, and sustainable energy future.
 - Works with SmartPower and REF to capture and measure program results with metrics.
 - Issued the RFP for Installers and Communities
- **SmartPower**
 - National non-profit marketing firm that has run many successful solarize programs in other states.
 - Is working with the towns, program partners and volunteers to increase awareness of the Solarize Program in both towns as well as plan and staff events.
- **Renewable Energy Fund**
 - In the office of Commerce RI.
 - Reviews grant applications and pays incentives to installer

Electricity Prices

- Rhode Island is the 9th most expensive state for electricity.

Top 10 Most Expensive States For Electricity



Data source:
Energy Information Administration. "Electricity Data Browser."
<http://www.eia.gov/electricity/data/browser>.

Infographic © Industry Dive 2014

Solarize Basics

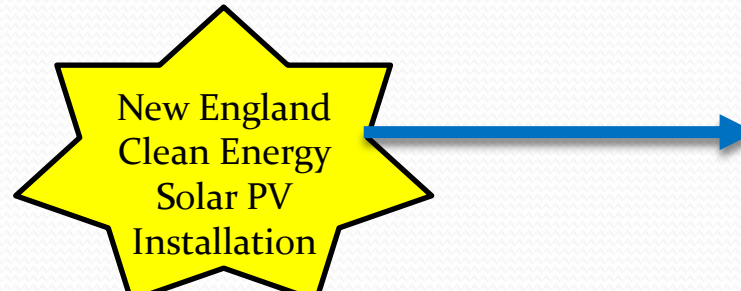
- Barrington, Foster, Warwick, South Kingstown & Aquidneck Island Communities – Fall 2015 Solarize communities
- Community driven outreach
- Competitively selected installer
- Tiered Pricing – New England Clean Energy bid pricing specific for this program

Tier	1kW-50kW	51kW-150kW	>151kW+
Price (\$/W)	\$4.94	\$4.80	\$4.75

- Deadline February 15th, 2016 (Limited time offer)

The Installer

- Introducing New England Clean Energy as the selected installer for Foster!!
 - The technical resource for all questions
 - Provides free site and feasibility assessments
 - Offers competitive tiered pricing
 - Performs turnkey installations
 - Coordinates with the Town



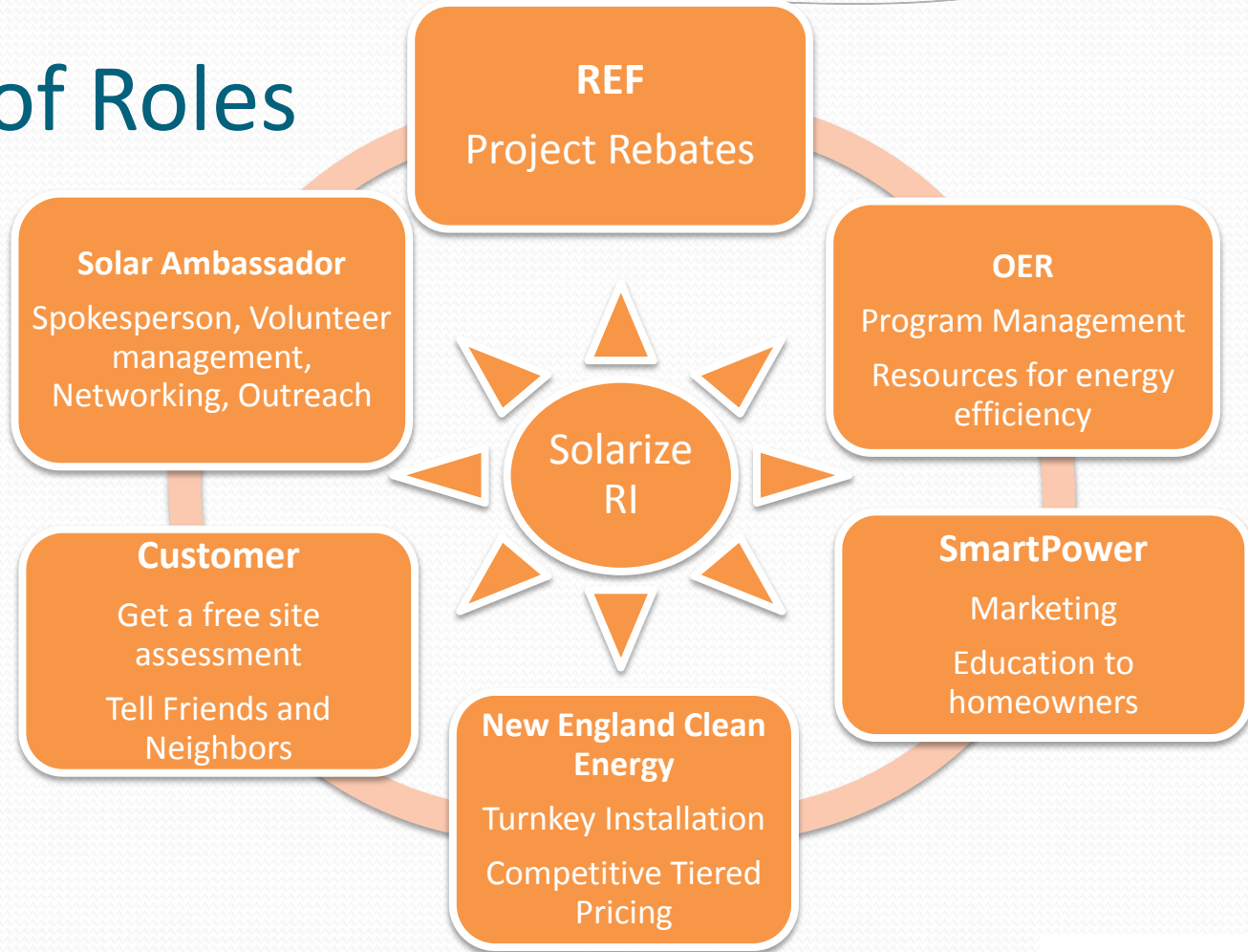
Selected Installer: New England Clean Energy

- **Superb reputation for quality and service**
 - More reviews on SolarReviews.com than any other New England Installer
 - 4.8 out of 5.0 rating on SolarReviews.com
 - Providing most complete warranties
- **Extensive experience**
 - Over 650 solar installations in New England
 - Experience with community solar programs
 - Solarize Mass installer for Harvard, Acton, Shirley, Stow
- **Best overall price to value**

Community Solar Ambassadors

- Success, and lower prices, depends on neighbor-to-neighbor participation.
- We are looking for Solar Ambassadors to:
 - Engage Community
 - Coordinate volunteers
 - Drive residents to workshops
 - Educate on basics of solar PV technology
 - Network with neighbors
 - Be a spokesperson for the program
 - Take part in Biweekly call with the Program Administrators

Recap of Roles



Thank You!

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Who We Are and What We Do





Agenda

- Introductions
- Why solar, Why now
- Differences among installers
- How solar works



Meet The Team



Roy Van Cleef
Solar Consultant



Rick Lamothe
Solar Consultant



Rob DeBevoise
Solar Consultant



Kevin Gebo
Solar Consultant



Kim Herron
Program Administrator



Elizabeth Michaud
Solar Advisor



Tracy Cournoyer
Sales Administrator



Doug McCartney
Director of Sales





What We Do

- Design and install renewable energy systems to help you secure your energy future



Our base price covers everything required and what a diligent property owner would expect, including:

- Custom solar system design
- Licensed professional engineer roof evaluation
- Building and electrical permits
- Utility interconnection agreement
- Installation that exceeds all applicable standards
- All materials; panels, inverters, remote monitoring hardware, etc.
- Training on how your system works



More Important? Peace of Mind

- Free Lifetime web status and performance portal
- 20-Year System Performance Warranty
- 20-Year Workmanship Warranty
- 20-Year Roof Protection Warranty (new roof or new home)

PLUS

- The best manufacturer warranties available, including:
 - **SolarEdge** 25-Year Extended Inverter/Optimizer Warranty
 - **SunPower** 25 year warranty on service, materials and electricity production





Why Solar; Why Now





Reasons People Don't Go Solar

- Money
- Don't like the way it looks
- Worried about the roof
- Complicated utility programs and policies
- It takes time to do the research
- Not sure how long solar will work

→ Peace of mind is paramount

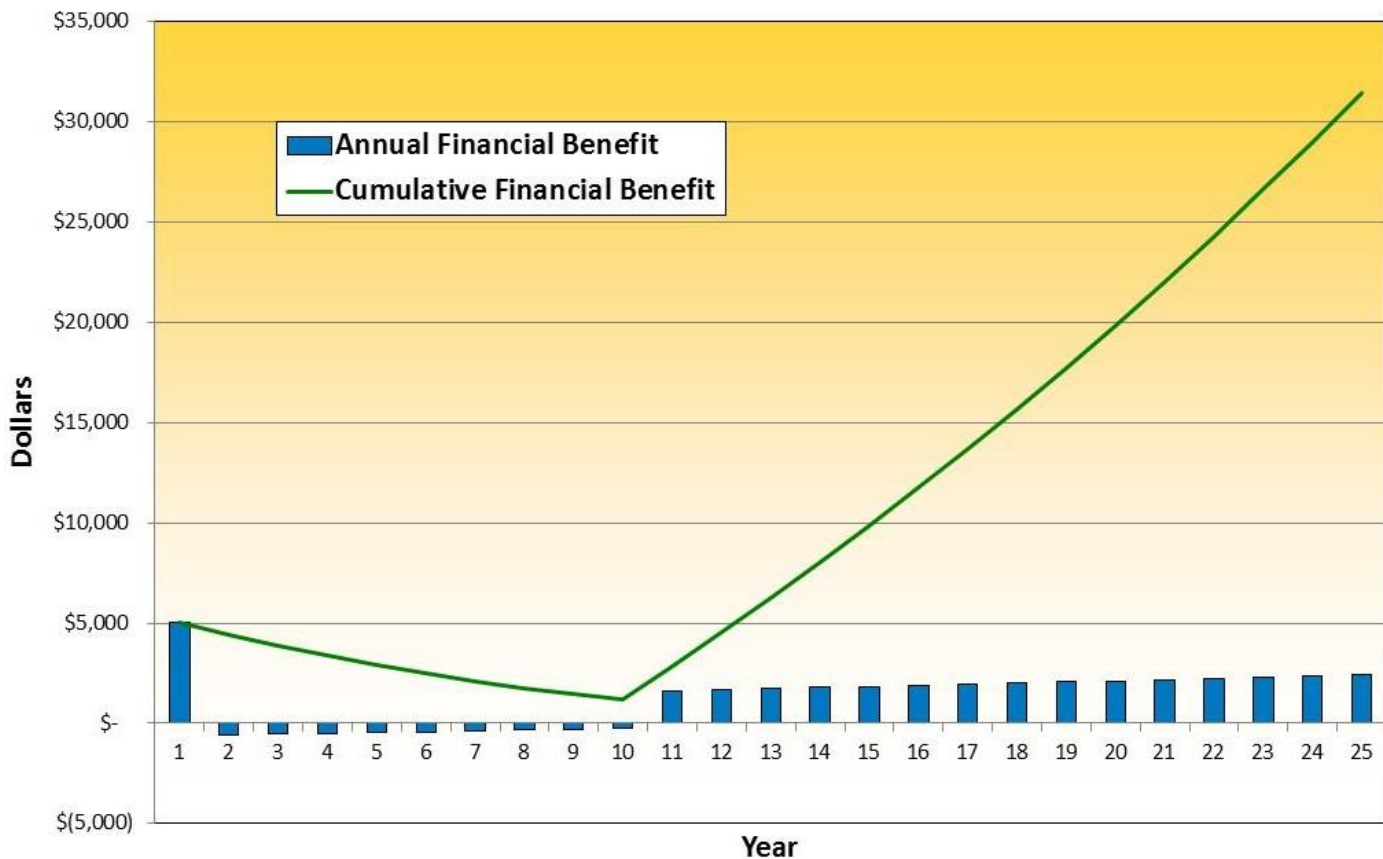


Money

- Solar costs as much as a kitchen or a car
- Solar pays back in ~7 years and you don't pull up to the pump every few hundred miles
- Solar systems can pay their own debt service



Solar Can Pay for Itself*



* 18 x 320 W modules; SolarEdge Warranty Extension; 85% roof; 3.6% annual electricity price increase; 12 year with 12 month Same as Cash Clean Energy Combo Loan; Renewable Energy Fund grant program





Aesthetics

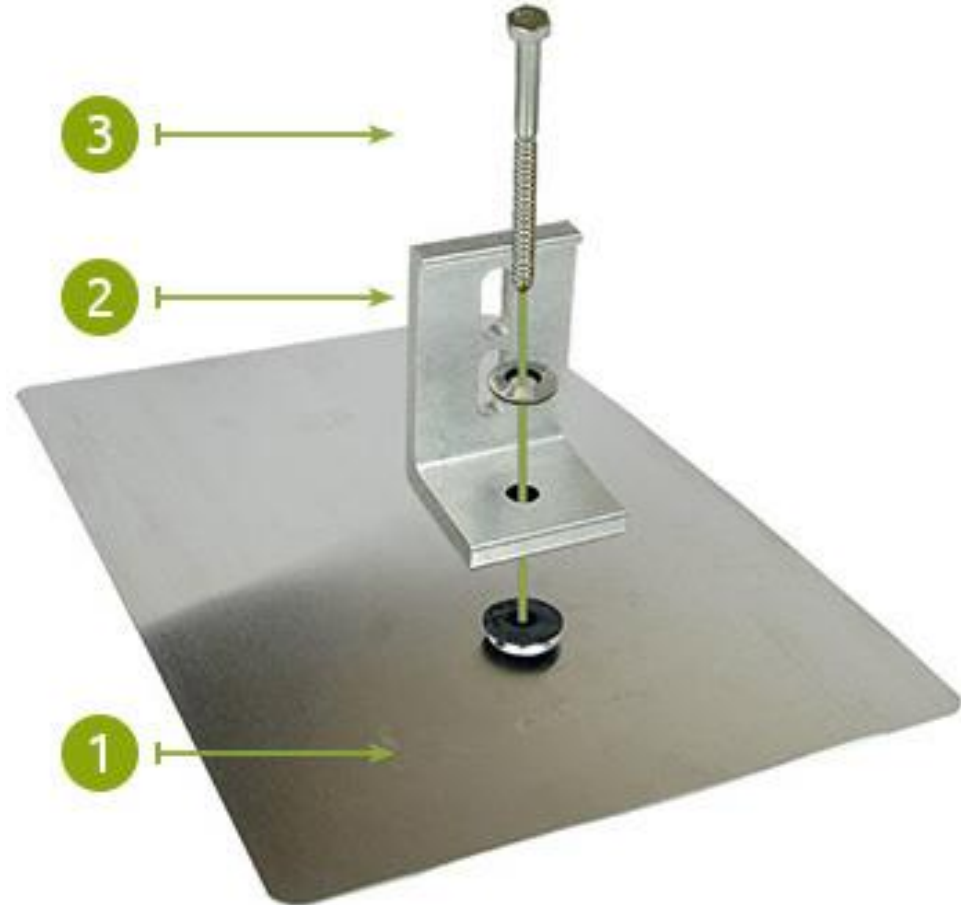
- When you see a solar system, what do you see?
- Solar we install does not look industrial





Worried About Your Roof

- Triple protection
 - Volcano shape
 - Rubber gasket
 - Sealant in the hole
- Less likely to leak than your vent pipe
- Solar panels reduce the wear and tear on your shingles



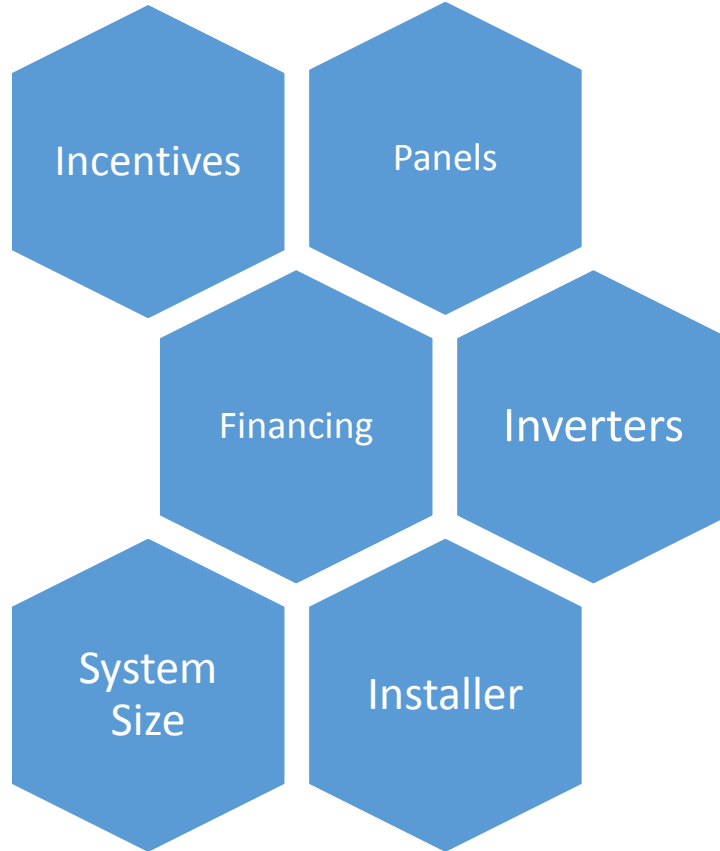


National Grid Policies

- Policies are not simple – we understand them
 - Careful analysis
 - Face-to-face meetings
- Foster residents choose between subsidies:
 - Renewable Energy Growth – Paid for every kilowatt hour generated
 - Renewable Energy Fund – up front rebate with net metering



Solarize Foster has Done Research



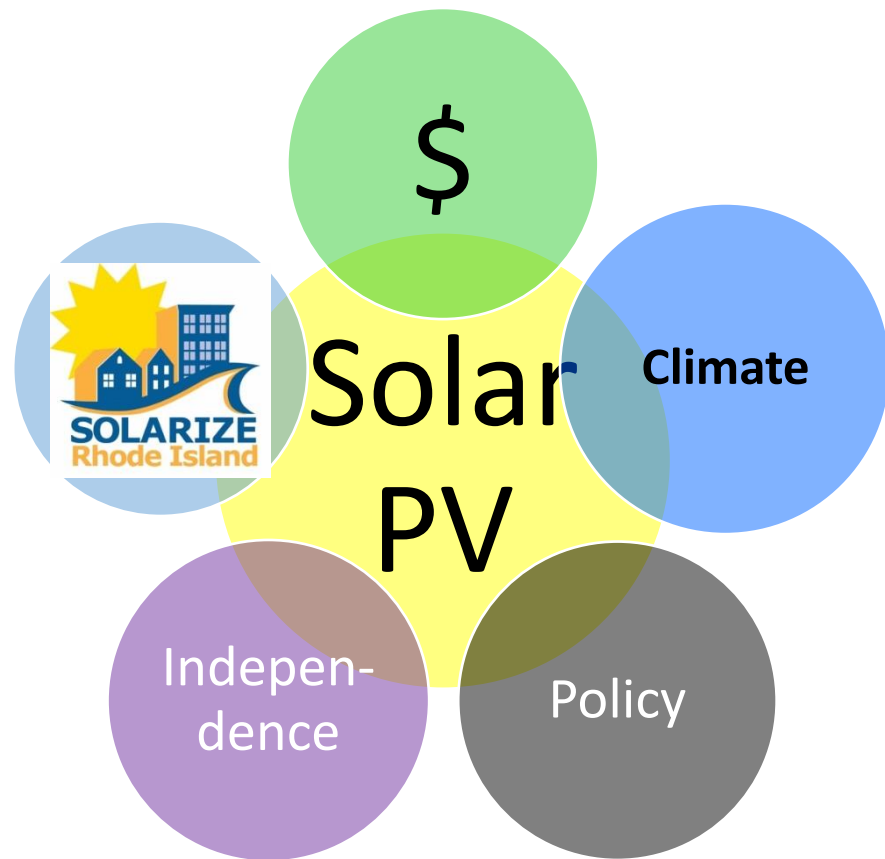


Concerns About Reliability

- 12 or 25 year inverter warranties
- 25 year “bumper-to-bumper” panel warranties
- Installer warranties say much about the installer
 - Workmanship
 - Moving to a new home
 - Re-roof
 - System performance
 - Value of electricity
 - Value of Feed in Tariff



Why Solar; Why Now





Great Pricing ... Getting better

Buyer of 5,760 W system could save an additional \$1,090

Tier	1	2	3
Kilowatts Contracted with New England Clean Energy	1 – 50	51 – 150	151+
Number of systems*	~ 8	~ 8 - 26	~ 26 +
Standard Option Cost per Watt**	\$4.94	\$4.80	\$4.75

* Using 5,760 Watts as an average system size.

** Includes the cost of financing. A “negative adder” applies for those wishing to pay cash.



Incentives and Benefits

- 30% federal tax credit
- No impact on property taxes
- Increased property value
- Choose your RI incentive:
 - Feed in tariff of up to \$0.41 / kilowatt hour or
 - Grant of \$1.15 / watt of system capacity up to \$10,000



Two RI Incentives to Choose From

Feed in Tariff (REG)

- Pays you for all your solar generation – Feed in Tariff (FIT)
- Buy your electricity using the proceeds of the FIT
- Get a check from NGrid for the balance monthly
- Lock in the FIT rate for either 15 or 20 years (2015 rates)
 - 15 years → \$0.4135 / kWh
 - 20 years → \$0.3775 / kWh

Grant (REF)

- Rebate of \$1.15 / watt up to \$10,000 paid within a few months of 'go-live'
- Capture the value of excess production with **Net Metering**
 - The grid is your battery
 - ~Full retail credit for all the electricity you make that you don't use
 - NGrid applies the credit to your bill



Excess Solar Generation

- When your solar system produces more electricity than you use, the excess solar electricity goes to the grid
- You will get credit:
 - With the grant – net metering gives you credit equal to ~ full retail price
 - With the Feed in Tariff – you get credit at up to \$0.41 / kilowatt hour





Affordable Solar

- Low \$1,000 deposit to get started
- Financing of your system available
- 10 or 12 year financing
 - Backed by Enerbank USA
 - System may cover the loan payments





Long Term Benefits for You

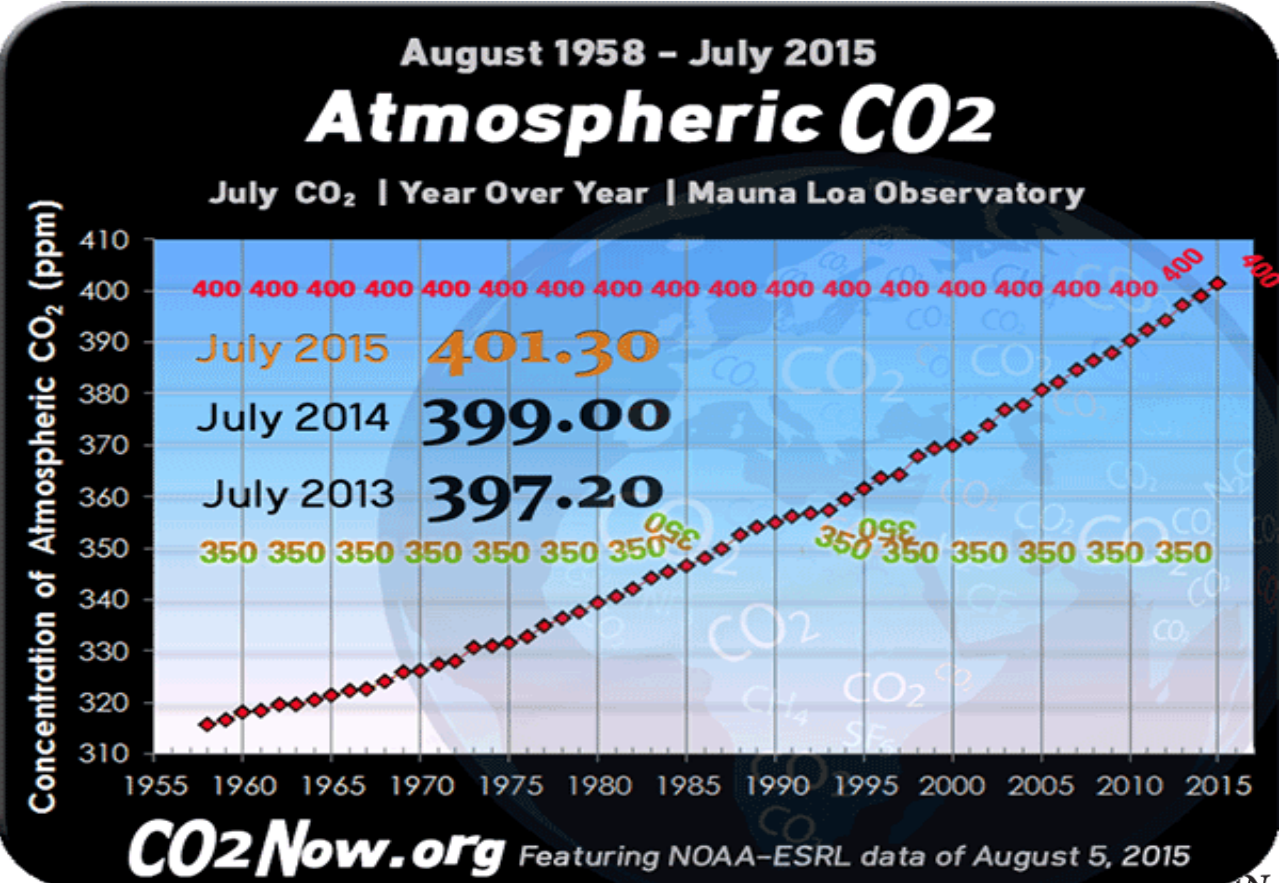
Cash Purchase (no loan)	w/ Grant	w/ 15 yr FIT
Net system cost (5,760 W) at tier 2	\$14,508	\$19,354
25 Year electricity savings	\$44,155	\$33,354
Net Feed in Tariff		\$15,673
Approx. Property Value Increase	\$20,160	\$20,160
Net Financial Benefit	\$49,807	\$49,833
Years to Break Even	10.4	7.4

Assumptions:

- 28 x 320 W modules and SolarEdge Warranty Extension
- 85% roof
- 3.6% annual electricity price increase



Climate





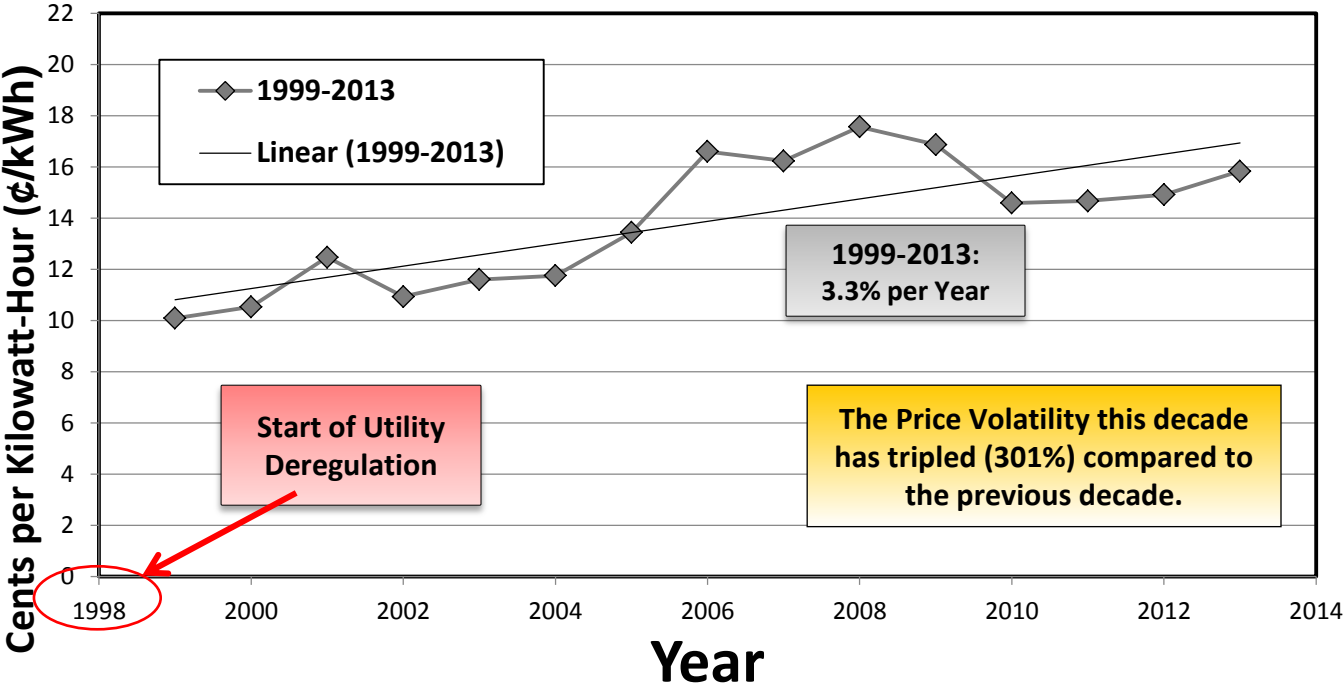
Favorable Public Policies

- The trend in solar policy: reduce incentives
- Today:
 - Federal government pays for 30% of solar --
12/31/2016 deadline
 - National Grid and Commerce Rhode Island programs
are new this year



Independence

Source: US Department of Energy
<http://www.eia.gov/electricity/data/state/>
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Solarize Foster

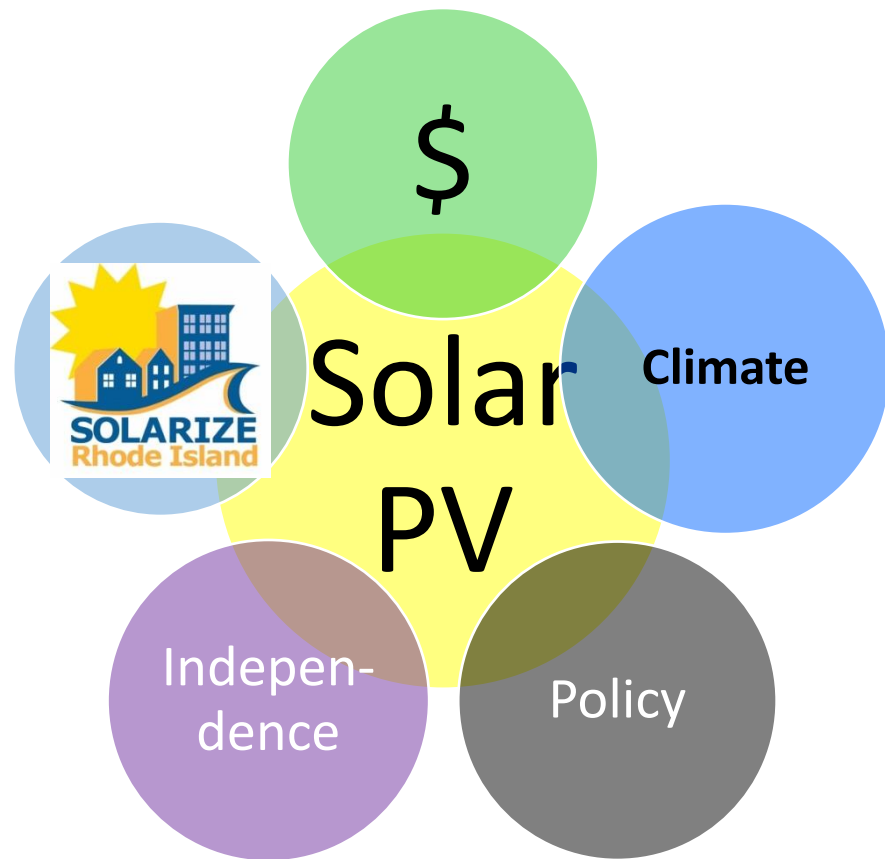
- Community program
- Volume discount program
- Due diligence → **Peace of mind**
 - Technical qualifications
 - Safe equipment choices
 - Team review and interview
 - Competitive value proposition

→ 7 - 11 year payback* for Solarize Foster

* Depending on modules selected, characteristics of the property, and selected incentive



Why Solar; Why Now





Differences Among Installers





It's Your Home









Solar Done Right Lasts

- Conduit on the roof exposed to heat and sliding ice/snow
- Beauty is not skin deep



The Little Things Matter





Warranties Indicate Confidence

- What do warranties cover
- How warranties last

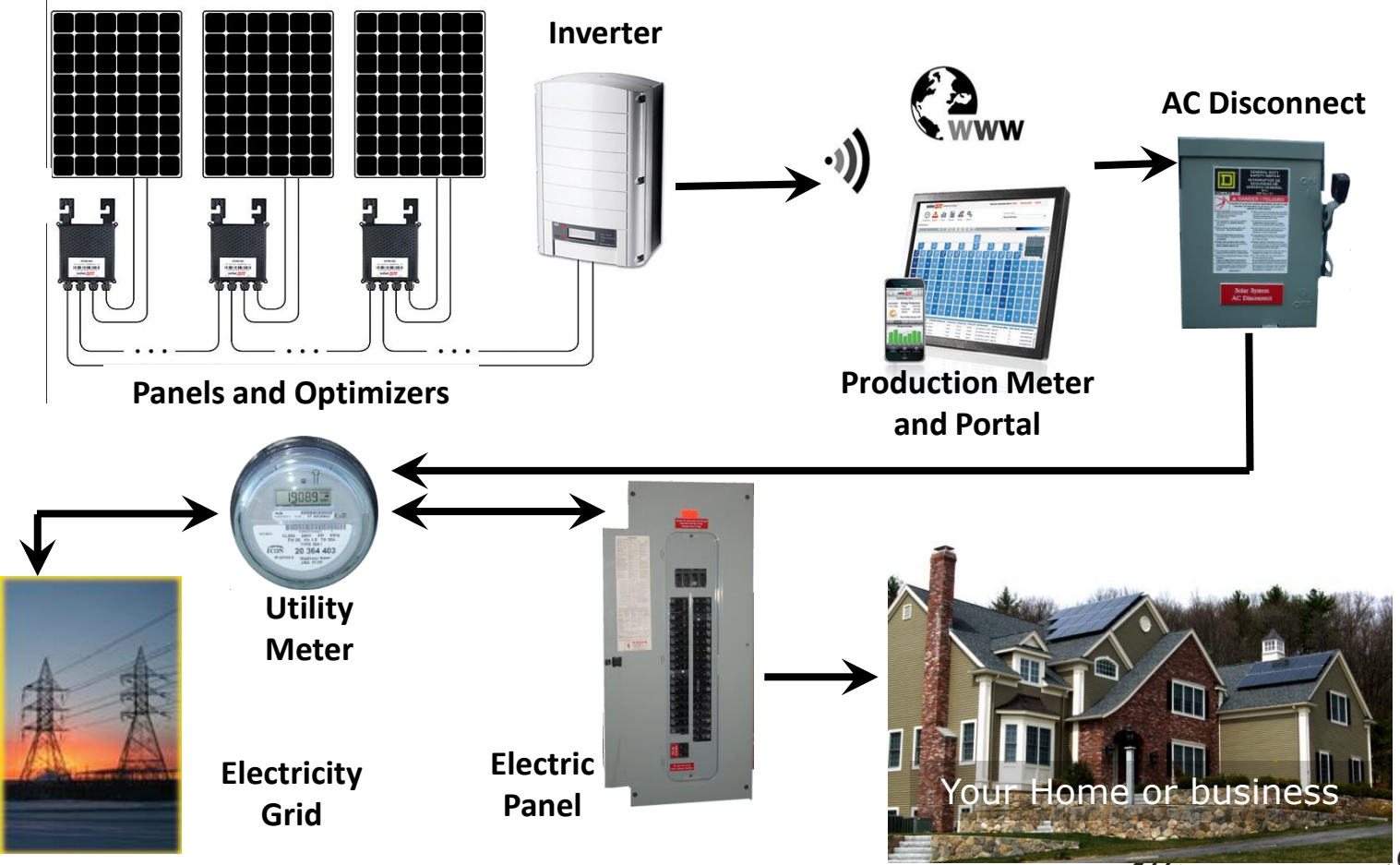


How Solar Works





How Solar Electric Works





Roof Attachment



Staggered for load distribution



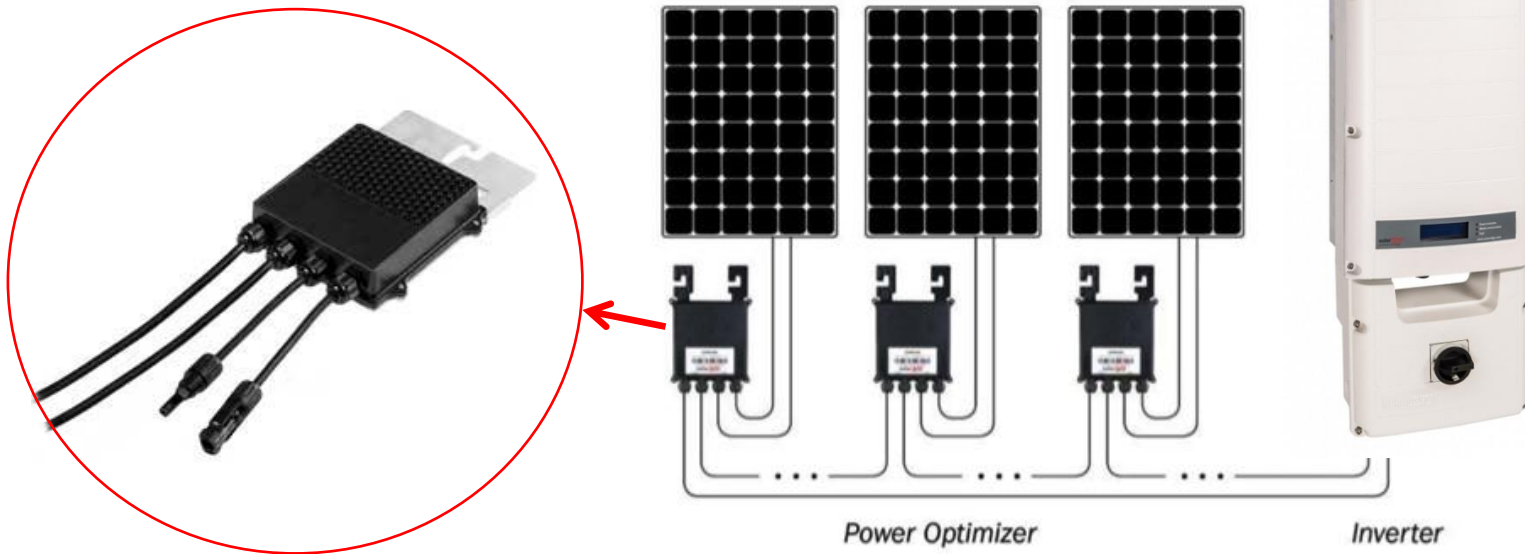
SunPower Solar Panels



High efficiency, best warranties in the business

- US Company
- 25 yr manufacture's /25 yr power /25 yr service warranty
- Highest Power Density: >18.6 watts per ft²
- 25.1 kWh/ft²/year
- Choose your power density 320, 335, or 345 watts nominal capacity per panel

Optimizers vs. Microinverters



Standard for All Panels:

- SolarEdge; An integrated inverter/optimizer hybrid
- Provides reliability of a string inverter with the per panel optimization of microinverters
- 25 Year warranty available on both components



Site Assessment and Design





Site Evaluation

- Roof
 - Angle, Azimuth, Area, Age
 - Structure, Shade
- Ground
 - Soil conditions
 - Trench length
 - Shade
- Electrical Service
 - 100/200 amp?
 - Open breaker slots?
 - Fuses/Breakers?
- Internet access
 - Router/switch location?
 - Ports available?



What We Look For

- Little to no shade from 9:00AM to 3:00 PM
- Tilt angle 10° to 45°
- When near ideal
 - 1.2 kilowatt-hours per 1 watt of solar per year.
 - 7% - 10% more with SunPower panels

Roof “Quality”

GREAT!



- True south
- Little to no shade
- Probably one of the best solar roofs around

↓
South

Maybe



- ~West facing
- Potentially lots of shade
- Need a pre-assessment to rule it in or out



Azimuth 240°

Azimuth 150°





Roof “Quality” – What do you think?



South



Funky Roofs



5,040 Watt Roof Mount
24 Schüco 210-watt modules
24 Enphase M190 Micro-inverters

4,070 Watt Roof Mount
22 Schüco 210-watt modules
22 Enphase M190 Micro-inverters
2 Panel Solar Hot Water System





System design



32 Panels
2 Solectria PVI-4000 inverters
Completed Summer 2011





System Design - Mounting Options



Roof



Table



Pole



Snow On Panels?





A Typical Home

- Uses about 10,000 kilowatt-hours of electrical energy per year
- About 800-900 kilowatt-hours per month
- The big energy users?
 - Pools
 - Air conditioning
 - Hot Tubs
 - Electric dryers
 - Electric heaters/heat
 - Old refrigerators/freezers
- On a good roof, an 8 kilowatt solar system would meet the demand



Reduce Before Renewables

- Rethink your energy usage
 - What do you really need?
 - Home Energy Audit*
- Fix the building envelope
 - Air seal
 - Weatherize
 - Insulate
- Change behavior
 - Turn off lights
 - Switch to compact fluorescents or LEDs
 - Use a clothes line

*

<http://www.lclwd.com/images/uploads/HomEnergyBrochure-1.pdf>



How Solarize Foster Works



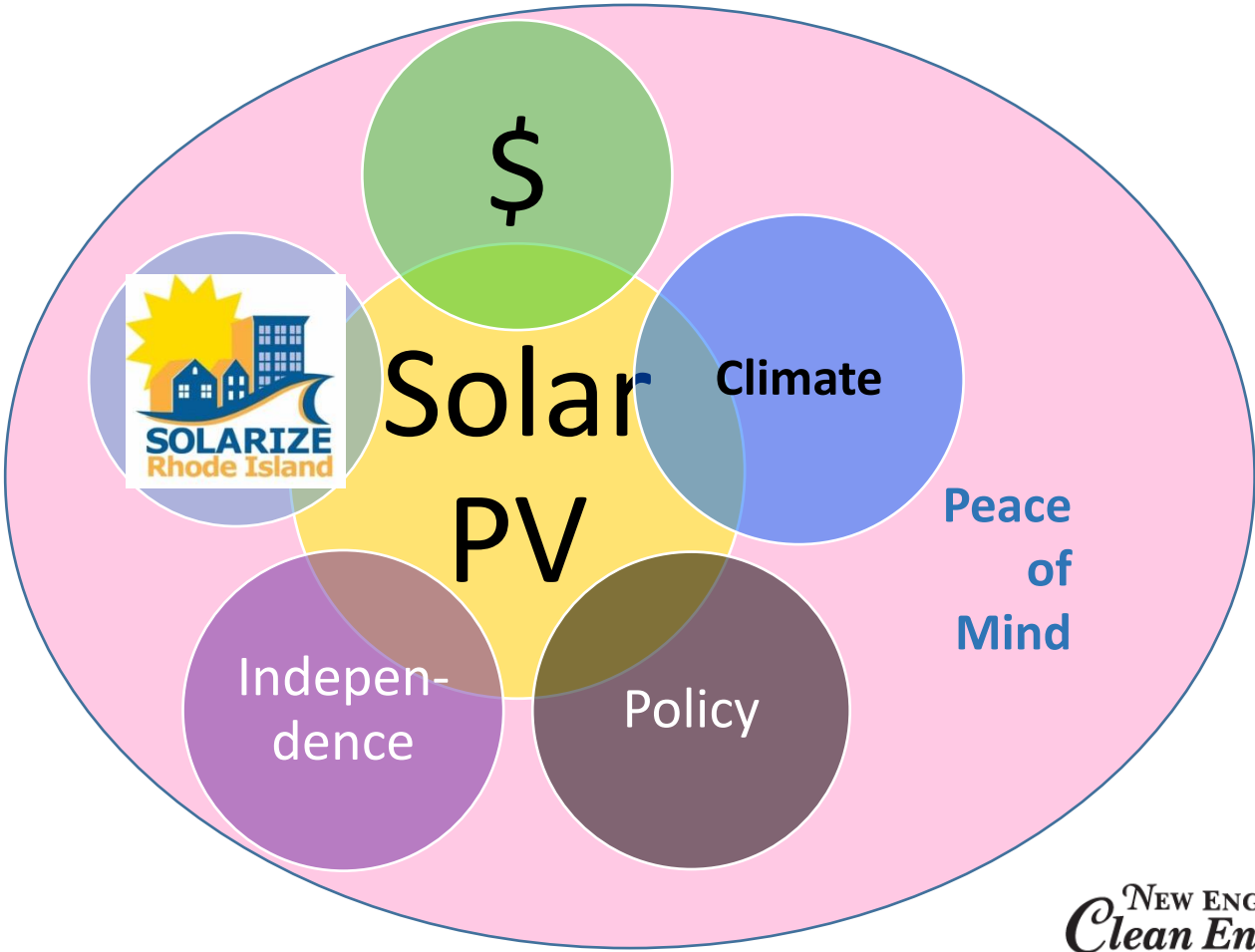


Solarize Foster Approach

- New England Clean Energy partnering with OER, Solarize Foster volunteers and SmartPower will help:
 - Information sessions and open houses
 - Publicity and event attendance
- Solarize Foster runs through February 15, 2016
- The more contracts signed with New England Clean Energy by the end of the program, the greater the discount for all



Solar, Now





You Can Make A Difference

- Sign up to schedule a free solar assessment
- Volunteer to help
- Spread the word
 - Social media
 - Yard signs
 - Tell your friends and neighbors
- Get more information about the Initiative at **www.SolarizeRI.com/Foster**



Get Started

- **Step 1:** Request a free solar assessment
 - Go to **www.SolarizeRI.com/Foster**
 - OR call **978-56-SOLAR** or toll free **844-567-9900**
- **Step 2:** Initial Inquiry, Phone Assessment, Home Assessment, System Design & Proposal
- **Step 3:** Sign documents
 - \$1,000 deposit
- **Step 4:** Installation
 - Permitting
 - Construction
 - Interconnection to the grid
- **Step 5:** Make your own, clean, electricity!