

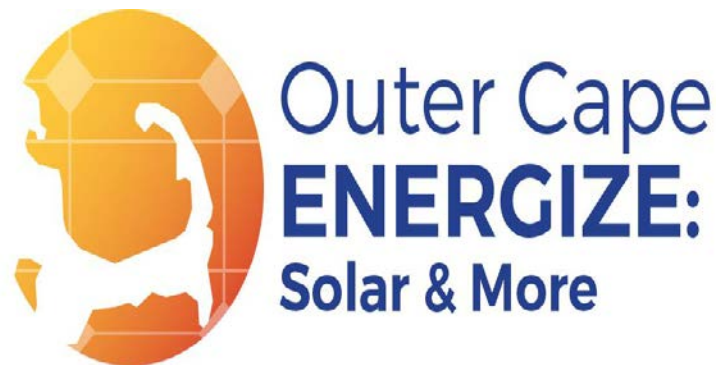


Outer Cape
ENERGIZE:
Solar & More

Agenda

- Overview of the Program
- Energy Conservation and Efficiency
- Massachusetts Clean Energy Center
- ACE Solar
- One-on-One conversations





Overview of the Program

About the Program

- **Mass Clean Energy Center 2018 Solarize Program Award**
- Community Support and participation
- Core Team of Volunteers to lead the effort
- Competitive Selection of Solar Installer - ACE Solar!
- Tiered Pricing Structure on Solar PV - more participation means everyone saves
- Carbon Replacement Technologies
- Energy Conservation and Efficiency
- Economic Development and Jobs for the Outer Cape



Four Participating Towns

- With the cooperation of the town energy committees, town administrators, and Board of Selectman of:

Eastham	Wellfleet
Truro	Provincetown



Join Us Again

Day	Date	Time	Location
Wednesday	February 14, 2018	6:30 PM	Truro: Library – Meet the Solar Installer - ACE Solar
Thursday	February 15, 2018	6:30 PM	Eastham Library– Meet the Solar Installer - ACE Solar
Wednesday	February 21, 2018	6:30 PM	Provincetown Center for Coastal Studies– Meet the Solar Installer - ACE Solar
Thursday	February 22, 2018	6:30 PM	Wellfleet Council on Aging– Meet the Solar Installer ACE Solar
Wednesday	February 28, 2018	6:30 PM	Truro: Library Outer Cape Energize Presentation
Wednesday	March 14, 2018	6:30 PM	P'Town: Outer Cape Energize Presentation



Three Part Program

- Solar Panel Installation
- Carbon Replacement Technologies such as Air Source Heat Pumps
- Energy Conservation



Overview

- Partners and Sponsors
 - MA Clean Energy Center
 - Cape Light Compact
 - Cape and Islands Self-Reliance
 - Wellfleet Bay Audubon Sanctuary
- One overall Principle
 - Go Green and Save Green



Solar Installer Selection

- Competitive bidding process and RFP developed by MA CEC and Outer Cape Energize
- Six quality proposals received - all six passed the initial Threshold review and the subsequent Technical review conducted by the MA CEC and a consulting firm.
- Of the six, four selected by Outer Cape Energize as finalists
- ACE Solar selected



ACE Solar Selection

- Lowest price
- Best Workmanship guarantee
- Use of local Electricians and Installation crews
- High Quality equipment
- After Tier 5, will donate a Solar system to a non-profit or charity
- Selected by six Cape towns for projects
- Significant commercial and residential installation experience
- 15 MWs installed in total - equivalent to about 1900 homes
- Massachusetts based company
- Medium-sized company



Next Steps and Contact Information

- Check the Outer Cape Energize website: www.outercapeenergize.org
- Contact Cape Light Compact to arrange a free Energy Assessment:
www.capelightcompact.org/energy-efficiency Phone: 1-800-797-6699
- For more information and/or to proceed with installation of solar and/or carbon replacement technologies:
 - Solar Residential and Wellfleet Solar Coach: Dick Elkin - dickelkin@gmail.com
 - Solar Business/Non-Profit and Provincetown Solar Coach: Jay Gurewitsch - Jay@arcadiaptown.com
 - Truro Solar Coach: Mark Farber - mark@markfarber.com
- Air Source heat pumps and Eastham Solar Coach: Jerry Hequembourg - texheq@msn.com
- Air Source heat pumps (mini-splits)/Air Source hot water heaters: Megan Amsler - megan@reliance.org
- Electric Vehicles: Elspeth Hay - elspeth.hay@gmail.com



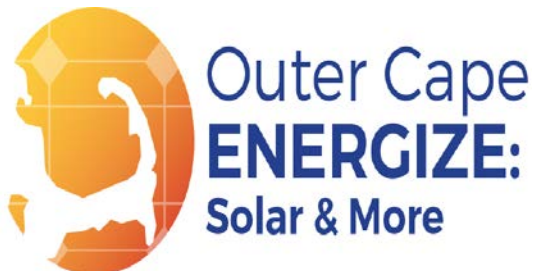


Outer Cape
ENERGIZE:
Solar & More

Energy Efficiency Reminder

Having an Energy Assessment is a Prerequisite

- Having an Energy Assessment within the past four years is a pre-requisite for participation in the Outer Cape Energize Solar program and Carbon Replacement Technologies program.
- Cape Light Compact is the regional provider of energy efficiency services on the Cape & Vineyard and a sponsor of the Mass Save® program.
- Energy Assessments are free of charge – whether home, business, or non-profit
- Generous subsidies offered on recommended efficiency measures, with enhanced incentives for income qualifying, tenant, and non-profit customers
- Remember: You already pay into this program on your utility bill
- Signing up is easy: Call 1-800-797-6699



How it Works

- Call 1-800-797-6699 M-F 8-4:30 to enroll
- Get a call back from RISE Engineering within a few days to schedule
- Team of 2 auditors come to your home at appointed time
- Assessment takes 1.5 to 2.5 hours and includes instant savings measures
- Auditors provide you with a report on recommended measures at end of visit that includes costs and savings and next steps
- Also provide you with Heat Loan paperwork for 0% loan
- You decide what you want to move forward with



Energy Efficiency Programs

For more information, please visit

www.capelightcompact.org

Or

Call the Compact's Energy Efficiency Programs at
1-800-797-6699





**EASTHAM • WELLFLEET • TRURO
PROVINCETOWN**

Meet the Installer Event— February 14, 2018



Overview of MassCEC



Overview of Solarize Mass



Solar PV Basics



Next Steps!

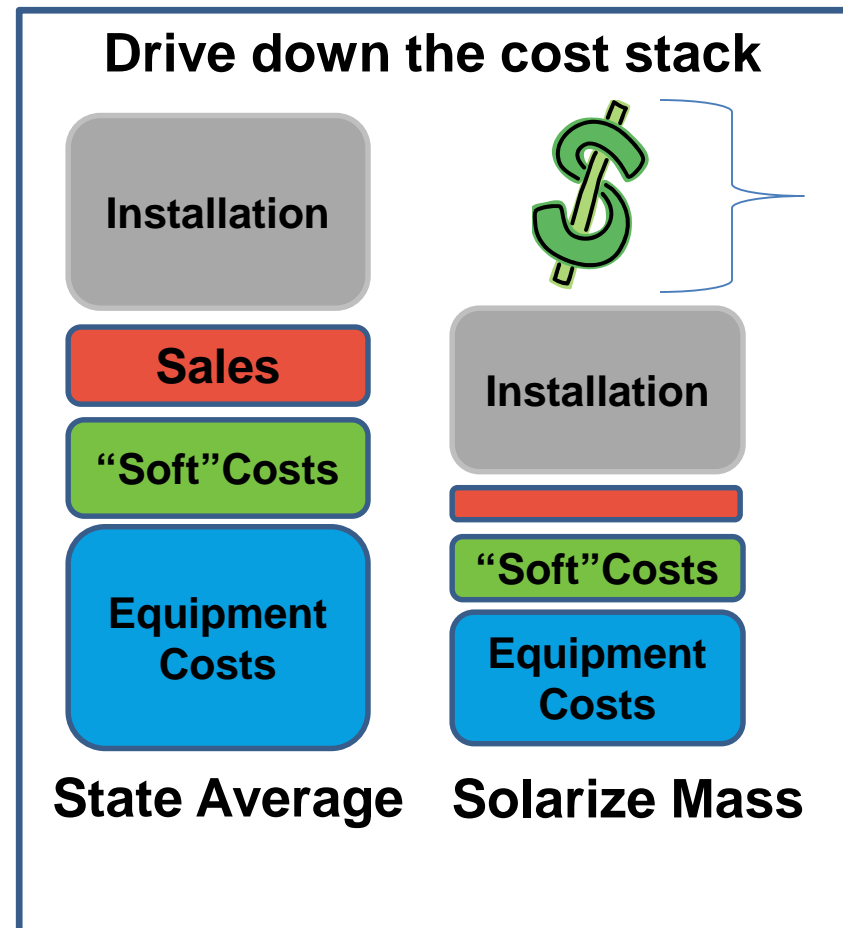
About MassCEC: Invest, Connect, Innovate



WHAT IS SOLARIZE?

Goals of Solarize Mass

- Increase education and community outreach
- Model to simplify process
- Reduce installation costs
- Reduce time to contract
- Increase adoption

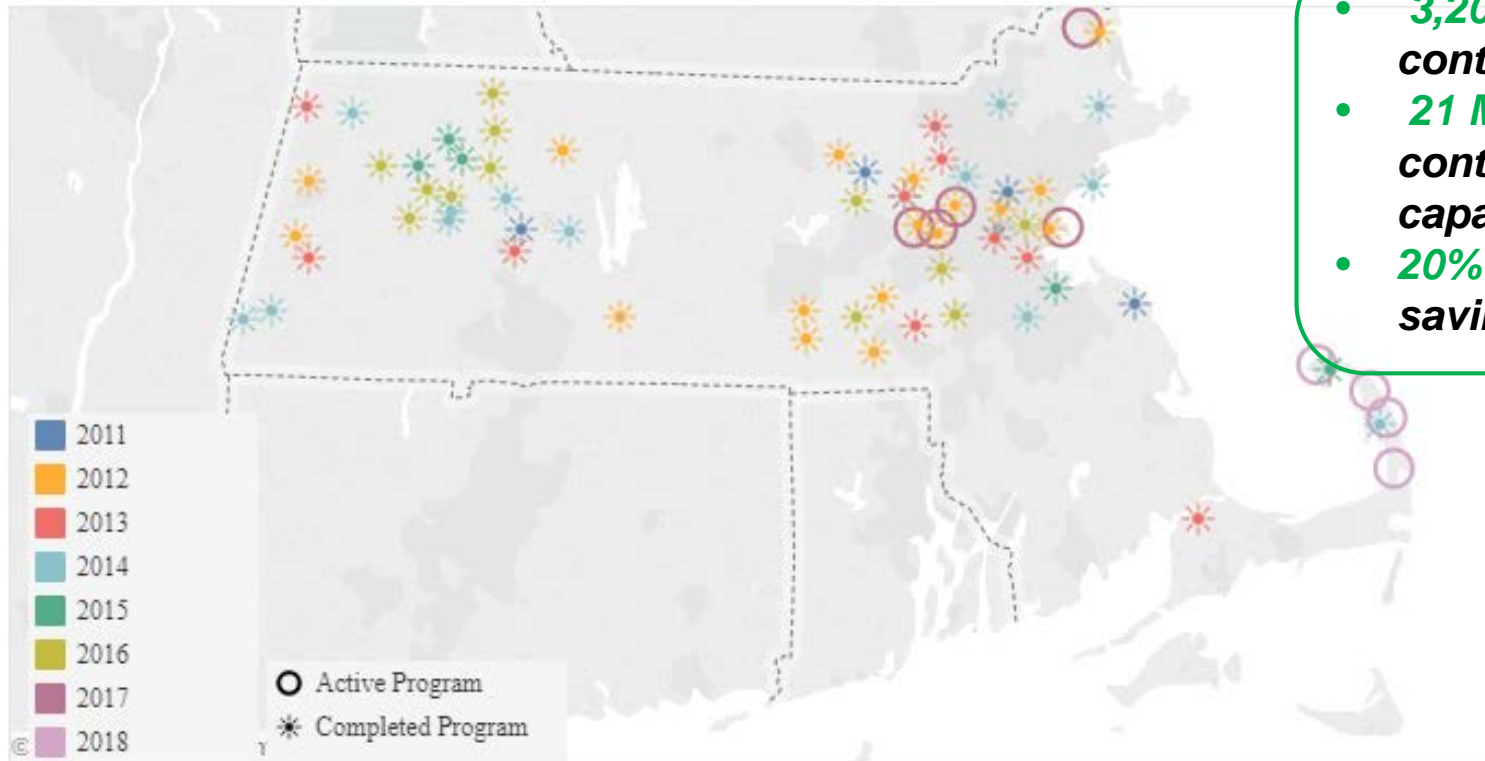


WHO HAS PARTICIPATED?

72 Communities

3,251 Systems Contracted

21,690 kW



- **3,200 contracts**
- **21 MW contracted capacity**
- **20% average savings**

18% of Massachusetts communities have participated in Solarize Mass

WHO'S INVOLVED?



EASTHAM • WELFLEET • TRURO
PROVINCETOWN

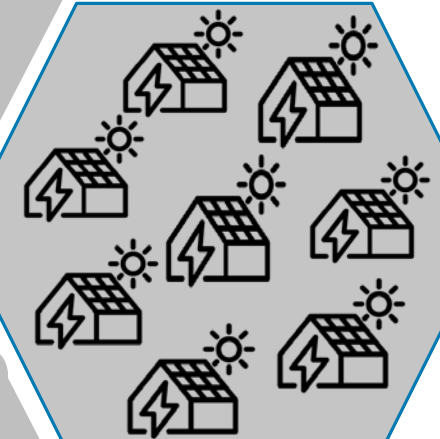


Community Volunteer Team

- Installer RFP and Selection
- Solar Coach
- Volunteers
- Outreach

Community Members

- Homeowners
- Business owners
- Non-profits
- Sign up for a Site Assessment
- Talk to neighbors!



MassCEC

- Town RFPs
- Engage tech. consultants
- Marketing/ Education
- State Incentive Program

Installers

- Free Site Assessments
- Tiered Pricing & Ownership or Purchase Options
- Contracting
- Installation

WHO'S INVOLVED?



EASTHAM • WELLFLEET • TRURO
PROVINCETOWN



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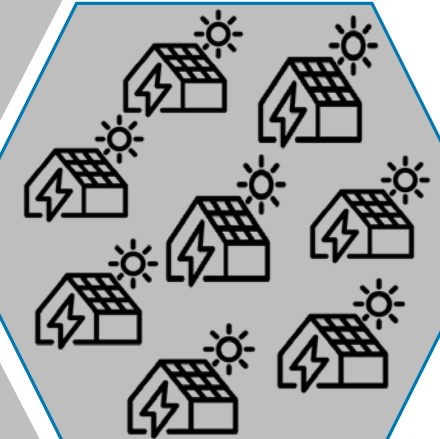


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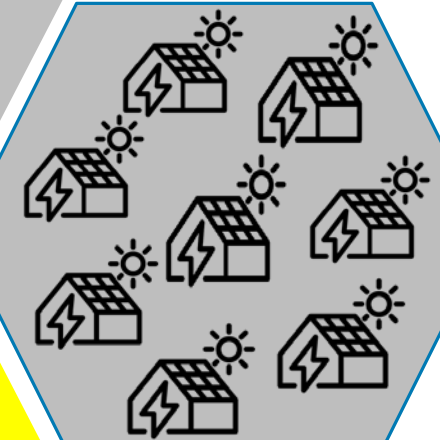


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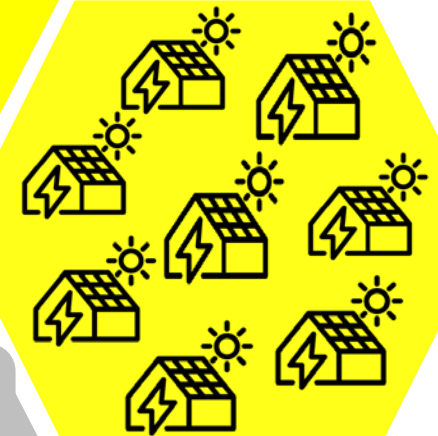


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WHAT IS SOLAR PV?

Solar Photovoltaic (PV) Basics



World energy use 16 TW-yr per year

~ 475 exajoules
~ 460 Quads

16



TIDES ¹
0.3 per year

0.3 - 2 per year
Geothermal ^{1,7}

3 - 4 per year
HYDRO ^{1,6}

2 - 6 per year
Biomass ^{1,5}

3 - 11 per year
OTEC ^{1,4}

25-70 per year
WIND ^{1,2}
Waves ^{1,3}

Natural Gas ^{1,8}

215 total

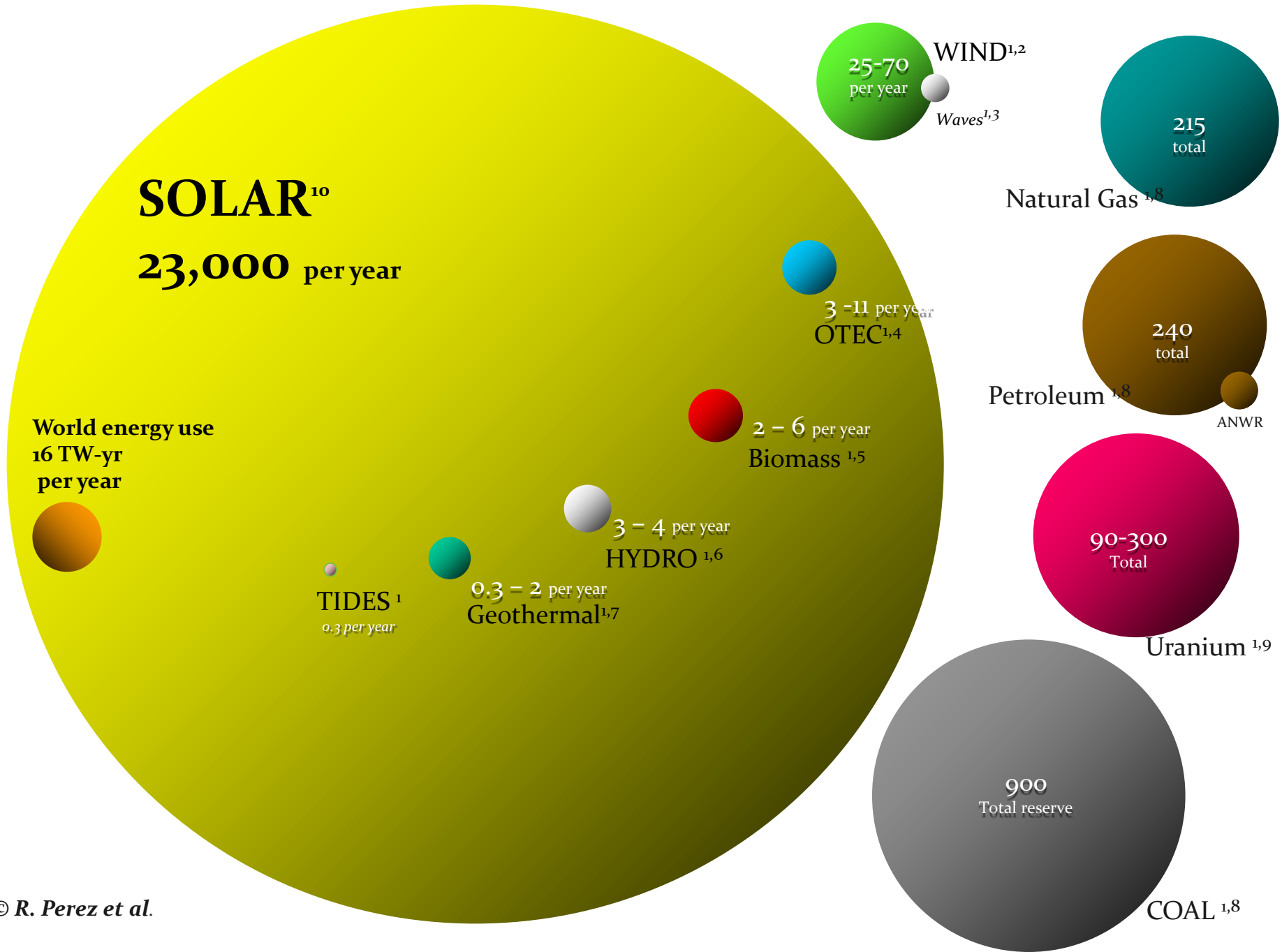
Petroleum ^{1,8}

240 total
ANWR

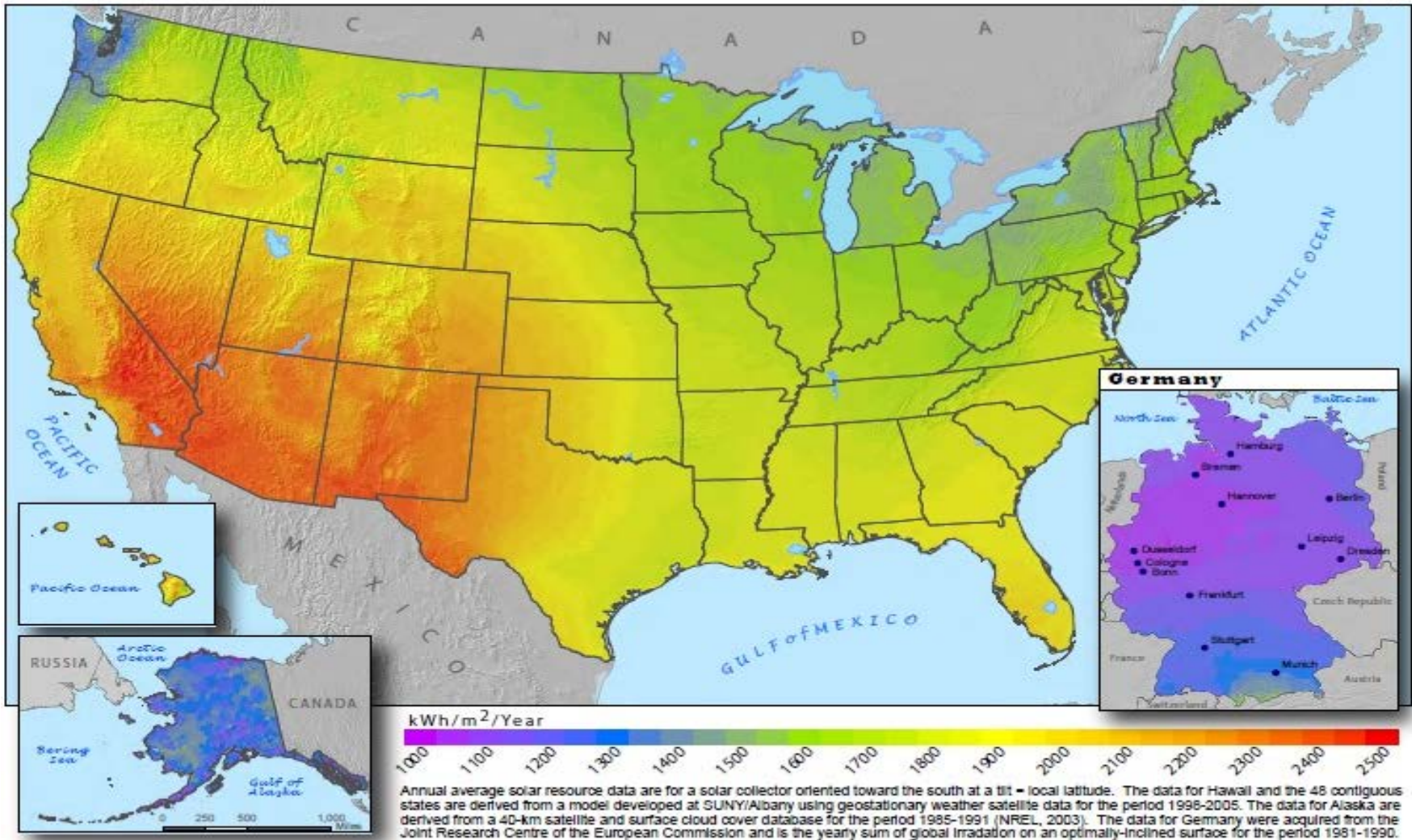
90-300 Total
Uranium ^{1,9}

FINITE ENERGY RESERVES

900 Total reserve
COAL ^{1,8}



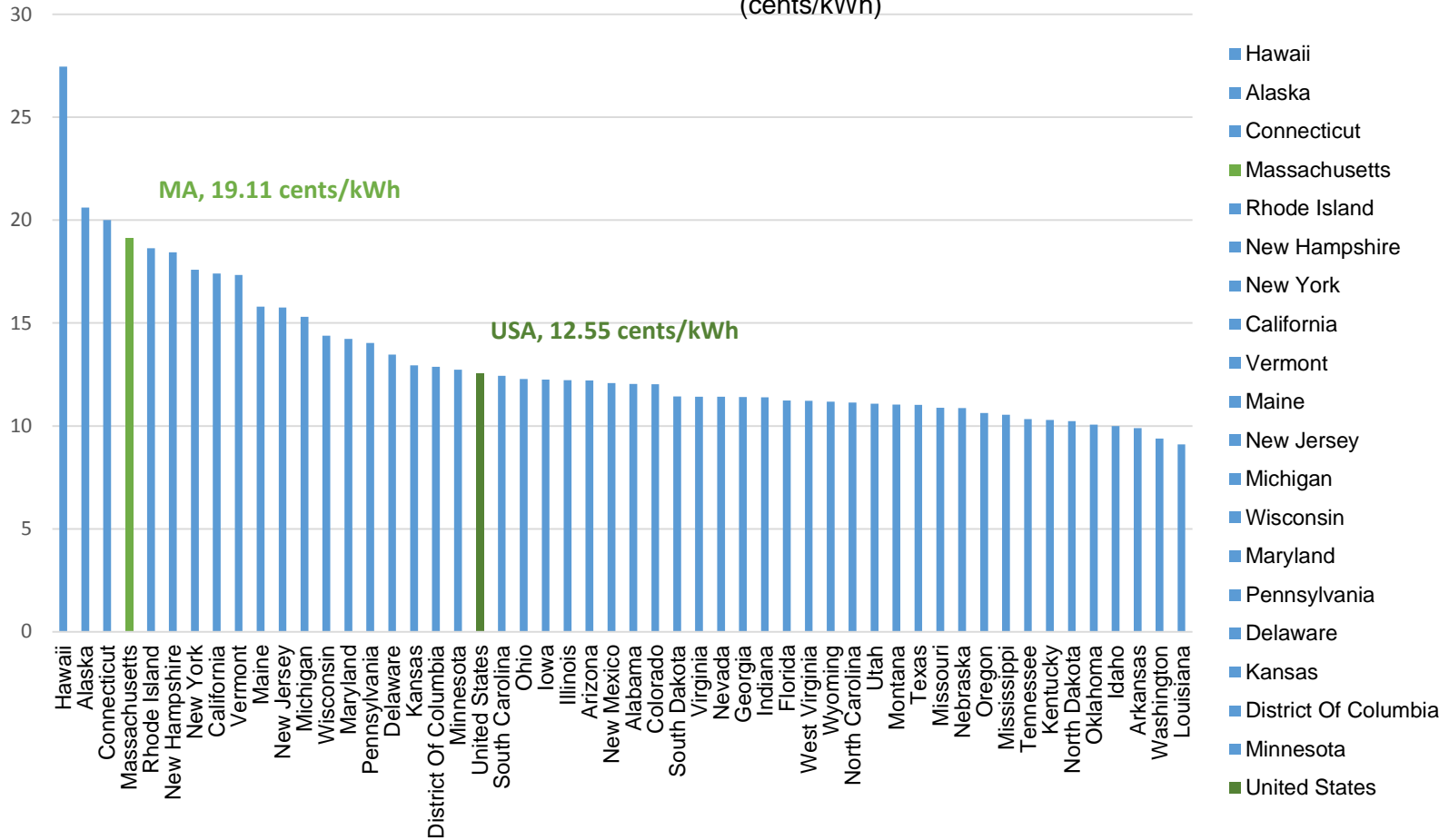
IS THERE ENOUGH SUN IN MA?



MASS RESIDENTIAL ELECTRICITY PRICES

2016 Average Residential Electricity Prices

(cents/kWh)

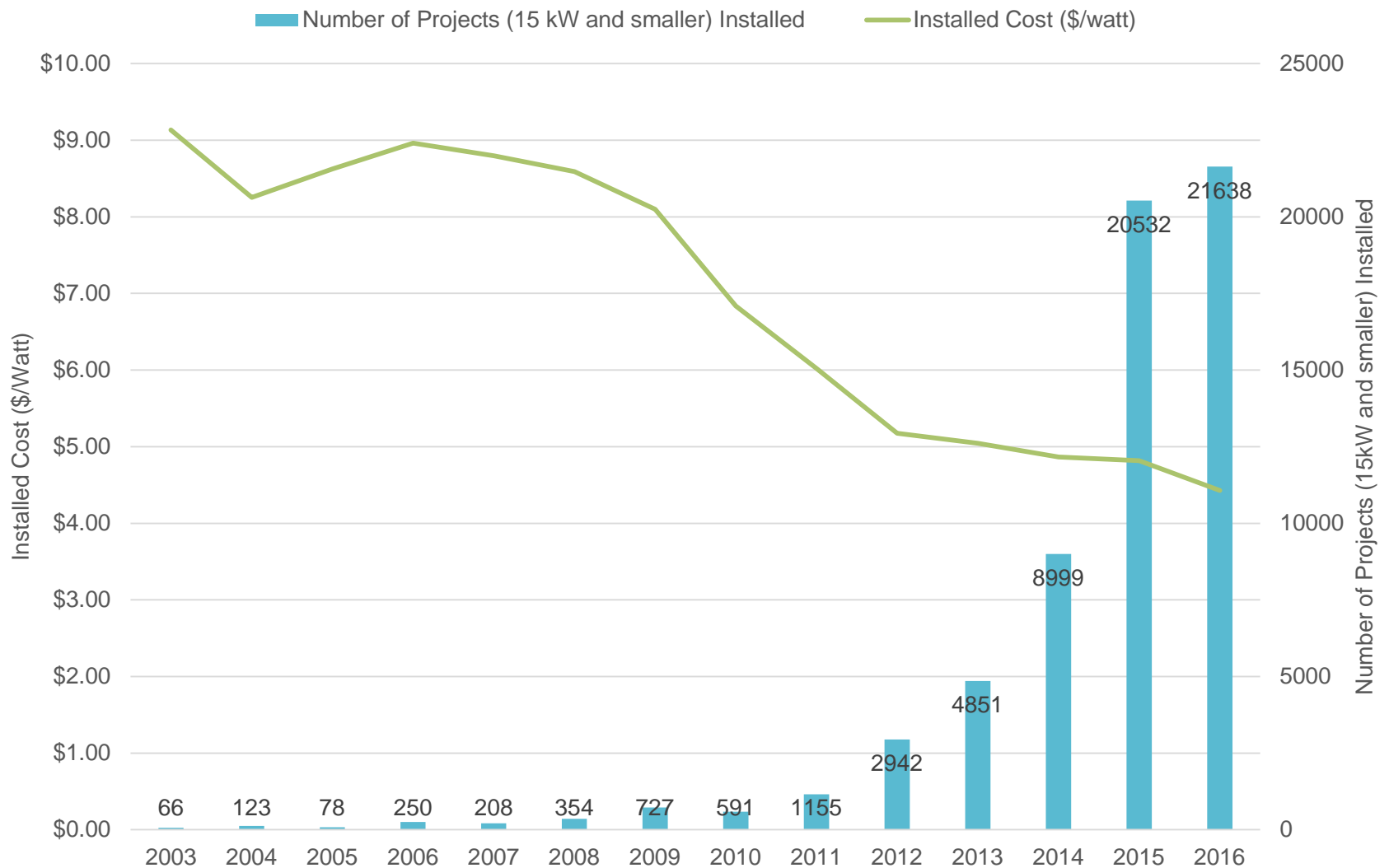


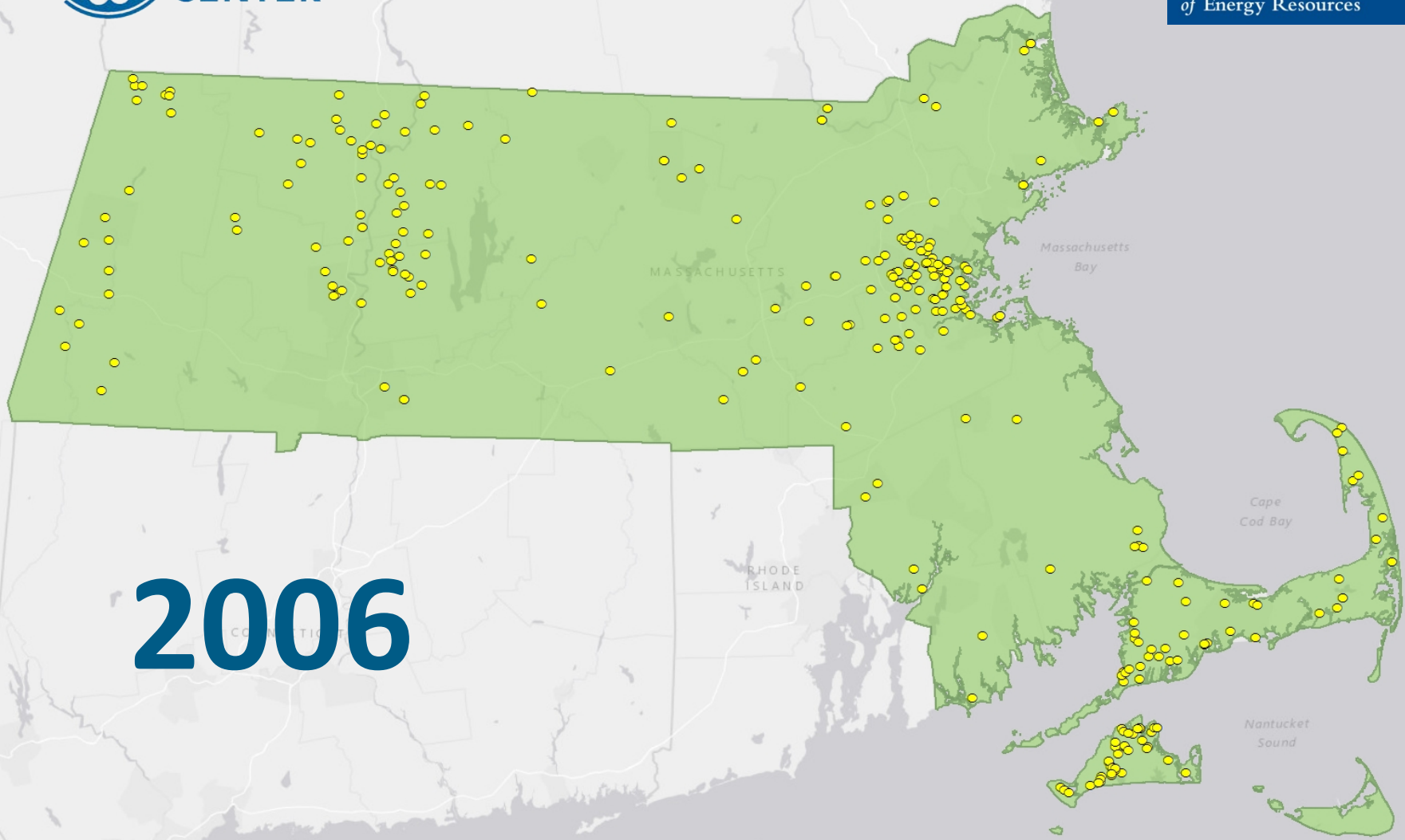
Sources:
EIA 2016
Data

MA homeowners had the 4th highest average electricity prices in 2016.

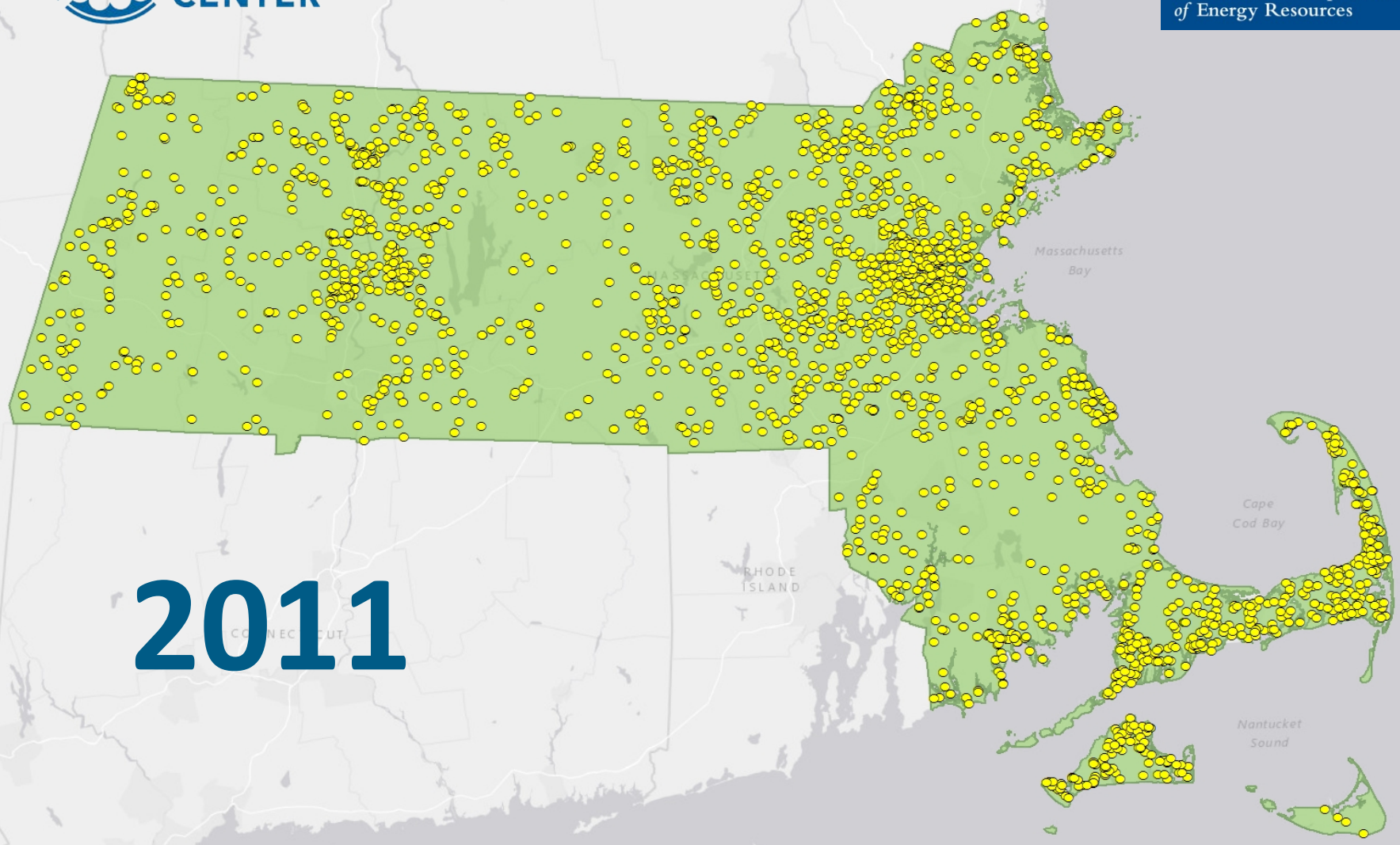


RESIDENTIAL PROJECT TRENDS

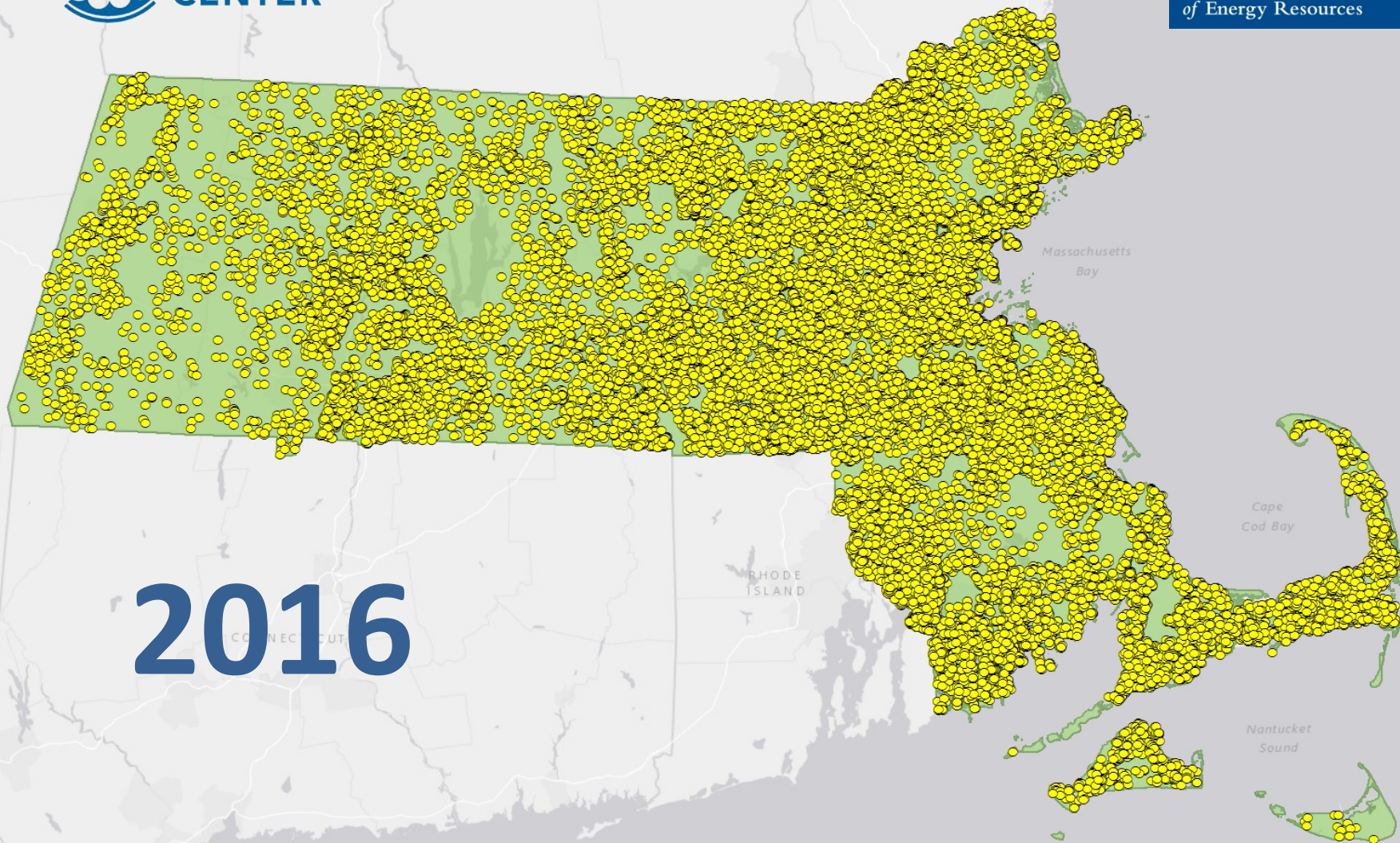




2006



2011



2016

INCENTIVES

Solar Incentives in Massachusetts

High electricity prices + reduced solar PV costs + numerous incentives = economical solar projects

Incentives

State and Federal Tax Incentives

Net Metering/ Utility Bill Savings

Production Incentives (currently SRECs, future SMART program)

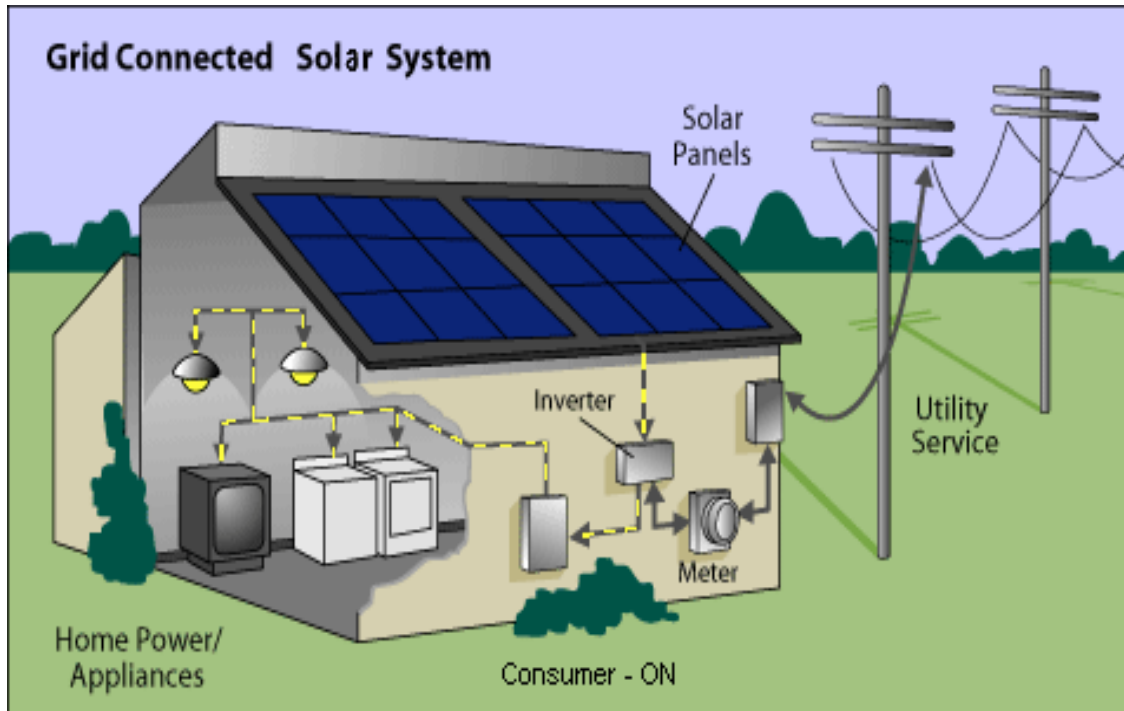
Mass Solar Loan program



www.house-power.com/blog/wp-content/uploads/2009/12/iStock_000090011&oxSmall.jpg

SOLAR PV INCENTIVES

Net Metering



- Method of measuring the energy consumed and produced by a customer's generating facility
- Receive a dollar credit (at close to retail rate) directly on your bill
- Not a cash incentive, but can be carried over month to month

- **Production > consumption = credit**
- **Consumption > production = bill (though likely significantly lower)**

PRODUCTION INCENTIVES

Solar Renewable Energy Certificates (SRECs)



Electricity Pathway

- Electrons from all generation sources are physically the same
- Cannot be tracked independently on the grid

Electricity and SRECs can be, and often are, sold separately



SRECs Pathway

- SRECs represent the “green” attributes of the renewable generation source
- Utilities are required to purchase SRECs every year
- Market based pricing value for each SREC generated

Solar Massachusetts Renewable Target (SMART)

Goal: Installing 1600 MW (AC)

Compensation:

- Will be locked in for a 10 year period
- Compensation Base Rate (based on utility)
 - \$0.34000/kWh for less than 25kW AC
 - \$0.39100/kWh for low-income less than 25kW AC
- Various adders available

When?

DOER is currently targeting launch in Summer 2018

MASS SOLAR LOAN PROGRAM

- Initiative aimed at increasing financing options for residential solar
- Partnered with 15 lenders across the state, offering competitive consumer loans
 - Provides established structure and loan parameters, including capped closing costs, opportunities to re-amortize or pay early without fees, and maximum interest rates
- Incentives available to reduce cost of the system and financing for income eligible customers (Below 120% of State Median Income)



Income Based Loan Support

Loan Loss Reserve

Interest Rate Buy Down



NEXT STEPS

Sign up for email updates and a free solar PV site assessment

Sign up for a free Mass Save energy audit with Cape Light Compact

Consider other Outer Cape Energize options if solar PV is not feasible

Tell your friends and neighbors!

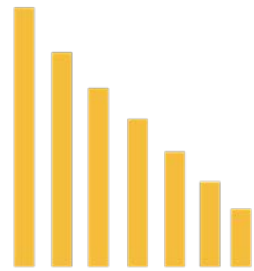
THANK YOU!

www.SolarizeMass.com
solarize@MassCEC.com

Up Next:

Your selected solar PV installer

ACE Solar!



ACE SOLAR

Alliance Clean Energy

Meet the Installer

Born out of an industry veteran...

140 MW of experience...

14.2MW in 2016 alone!

That's the equivalent of over 1800 homes!



Ranked #1
Solar EPC in
Massachusetts
for 2016!



ACE Solar

[Website](#)[Directions](#)

5.0 ★★★★★ 17 Google reviews

Solar energy equipment supplier in Andover, Massachusetts · 4.4 mi

Address: 342 N Main St, Andover, MA 01810

Hours: Open today · 8AM–6PM ▾

Phone: (800) 223-1462

[Suggest an edit](#)

Reviews from the web

EnergySage

5/5

14 reviews

Facebook

4.9/5

9 votes



Gerard Connell

★★★★★ 3 weeks ago -

ACE Solar was the name I came up with after some lengthy research into the various ways people approach going solar. From the first call to the last passing of documents, the people at ACE were nothing but professional, helpful, and ready to work with us on the details of our install. They managed the application process, the interaction with the power company, the permitting and inspection activities, and of course the installation. Each step along the way they were there to answer any questions or address concerns. We even needed a bit of equipment re-installed for some permitting reasons and they took care of business. We are completely happy with the installation and the equipment we chose, and looking forward to many years of power generation. Do you want a top notch system that is installed well and be backed by professionals for years to come? Call ACE Solar.









We know solar...



Bob - 7 Years



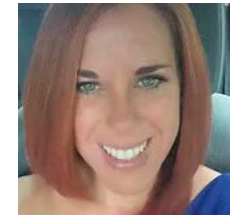
Mark - 7
Years



Eric - 16
Years



Chris - 7
Years



Shirley - 5
Years



Josh - 8
Years



Joe - 7 Years



Kris - 3 Years



Corey - 5 Years



Brian - 5
Years



Alden - 5
Years



Greg - 7
Years

So, how does **SOLAR** work?

1

Sun rays, also known as photons, shine into your solar panels. These panels convert the rays into Direct Current Electricity.

2

A solar inverter then changes that DC electricity into Alternating Current Electricity (AC). This is the type of electricity used to power your home.

3

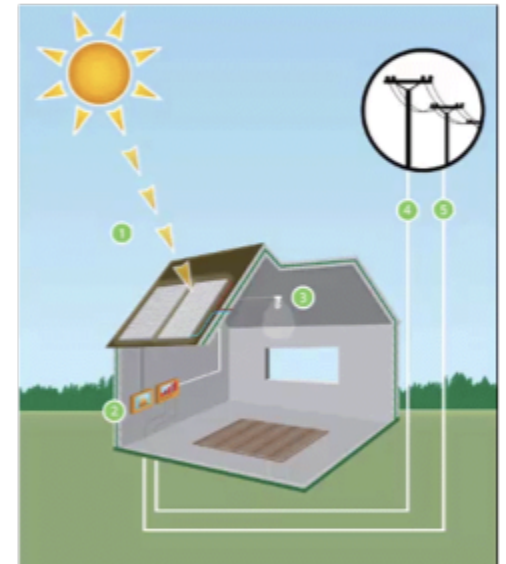
This electricity then travels from the solar inverter to your electrical breaker box and is consumed at your home whenever you need it.

4

When your solar energy system produces more electricity than you consume, the excess power is sent to the grid for others to use. Your meter spins backwards, giving you credit.

5

When the sun is down and your system is not producing electricity, your meter will spin forward. The difference between the electricity you produce and the electricity you consume is called net metering, and it determines your electric bill.



Solar Incentives:

ITC

30% Federal Tax
Credit on Total
Value of Project

MA TAX Credit

15% of System
Cost Capped at
\$1000

Solar Incentives:

SREC

Current Program
Slated To End
(June 1 or later)
Must have PTO by
the time SMART
starts

SMART

Tariff Based
Fractionally Less
Attractive
Will simplify
process

Your representative will educate on both of these programs!

SRECs Explained:

SREC = SOLAR RENEWABLE ENERGY CREDIT

1 SREC = **1,000 Kwh** of Electricity

You **EARN** .8 SRECs for every 1,000 Kwh

You **SELL** those SRECs quarterly

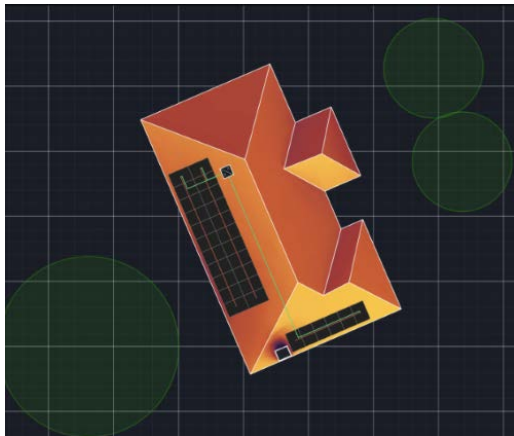
10 Year Program* (January 1, 2018)

Solar PV System Details

System Size & Generation:

3,780 W-DC System Size (DC)

4,244 kWh 1st Year Generation



SMAR

Equipment:	
(12) LG Electronics LG315N1C-G4	Solar panels
(1) SolarEdge SE3800H-US	Inverter(s)
System Pricing & Incentives:	
Solar PV System Cost	\$13,500
MASS Smart Tariff Value	-\$13,910
MA State Tax Credit	-\$1,000
Federal Tax Credit	-\$4,050
Net Solar PV System Cost:	-\$5,460

Financial Metrics	
Payback:	6.0 Years
ROI:	239.0%
10 Year IRR:	9.3%
20 Year IRR:	13.8%

SREC

Equipment:	
(12) LG Electronics LG315N1C-G4	Solar panels
(1) SolarEdge SE3800H-US	Inverter(s)
System Pricing & Incentives:	
Solar PV System Cost	\$13,500
REC	-\$5,449
MA State Tax Credit	-\$1,000
Federal Tax Credit	-\$4,050
Net Solar PV System Cost:	\$3,001

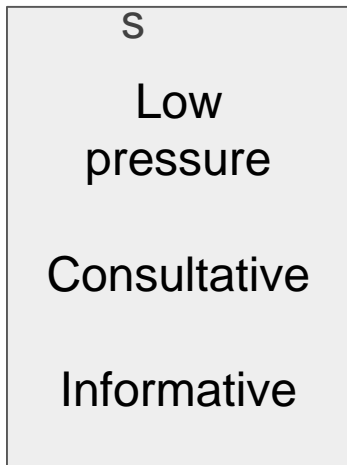
Financial Metrics	
Payback:	5.5 Years
ROI:	248.9%
10 Year IRR:	11.2%
20 Year IRR:	15.1%

Confused? Don't Worry.

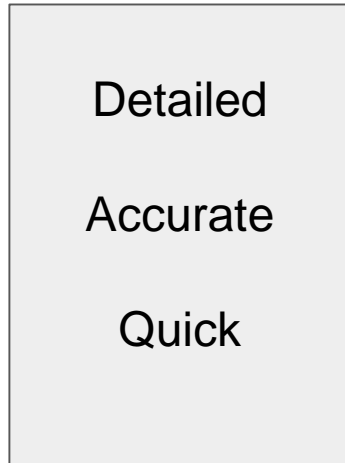
We're good at this...

Our process...

Sale



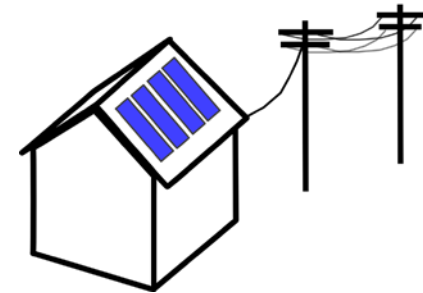
Engineering



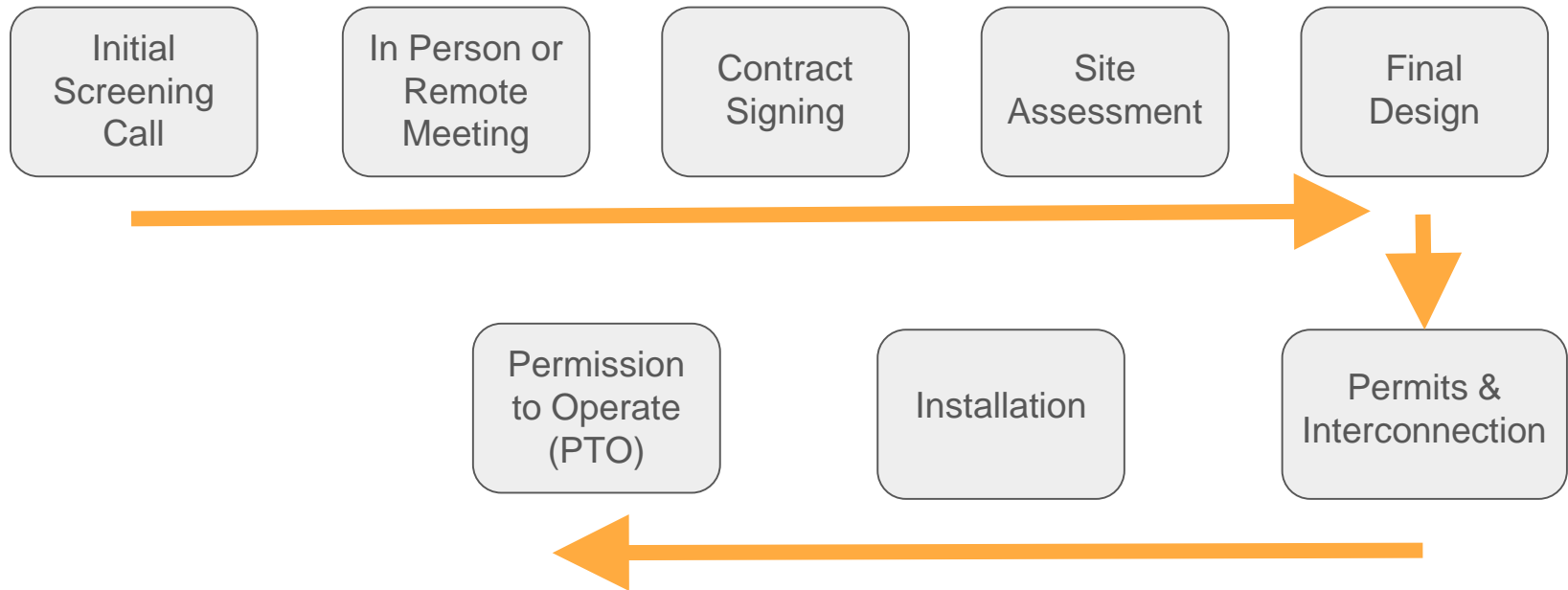
Install

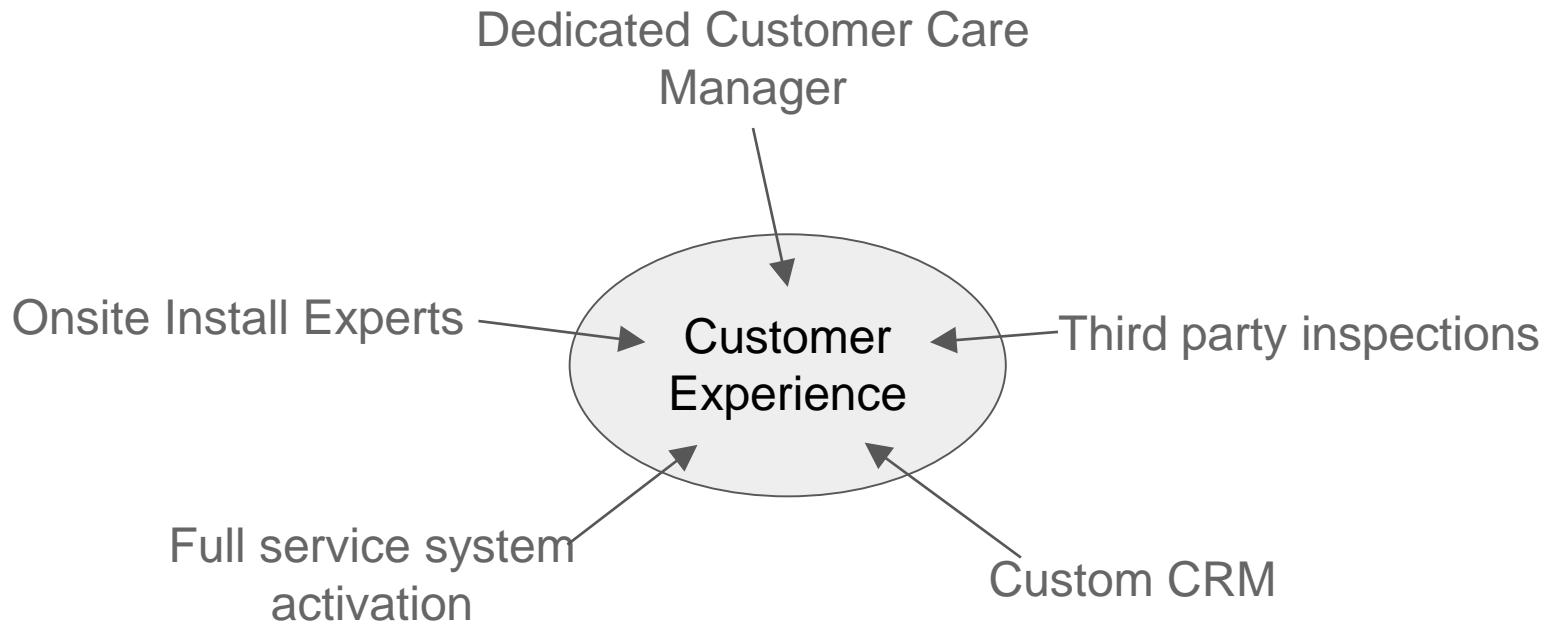


Your new **clean energy** producing money making machine!



Our process...





Financing...

PARTICIPATING VENDOR OF:



B L U E W A V E



Financing... 10-20 Year Terms

\$0 Down

5-6% Interest Rates

Credit Scores Down To mid 600's

Borrow up to \$100K

Second Property/Income Property/Vacation Properties
are Eligible

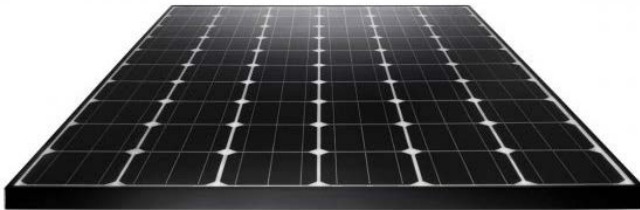
Financing...

Income-based Thresholds by Household Size		
Household Size	Category 1 - Low Income	Category 2 - Moderate Income
	80% or Below of State Median Income (Eligible for 30% reduction of loan principal)	120% or Below of State Median Income (Eligible for 10% reduction of loan principal)
1	\$45,840	\$68,760
2	\$59,944	\$89,916
3	\$74,049	\$111,074
4	\$88,153	\$132,230
5	\$102,257	\$153,386
6	\$116,363	\$174,544

Equipment...



MonoX™ NeON



Warranties...

FULL 20 YEAR WRAP!

Includes Production and
Equipment

We're there for you!

Pricing...

Tiers	1 kW-25 kW	>25 kW-50 kW	>50 kW-100 kW	>100 kW-200 kW	200 kW+
Purchased Price (\$/W)	2.65	2.63	2.61	2.6	2.6
Lease and/or PPA Price[1] (\$/kWh)[2]	Lease and/or PPA Price (at 90% optimal): _____ _ftn3 _ftn4				
Lease and/or PPA Incentive[5]	N/A	0.119	0.119	0.119	0.119

What now?

Get your 100% FREE no obligation
custom quote!

Visit <http://outercapeenergize.org/>

Or www.MyAceSolar.com

Or call us at 800-223-1462

OR Talk to us after!

Thank you!



Questions?