



COMMONWEALTH OF MASSACHUSETTS

*Charles D. Baker, Governor
Karyn Polito, Lt. Governor
Matthew A. Beaton, Secretary
Judith Judson, Commissioner*

Becket Energy Committee Informational Session August 24, 2019

*Jim Barry, RETIRED
Regional Coordinator
Mass DOER*

MassSave.com

First Step: NO-COST Energy Assessment

Too Good to be True? Nope!

Big Comfort and Fast Savings!

Installed at no cost as needed, such as:

- Energy Star® LED light bulbs
- Advanced power strips
- Low-flow showerheads
- Faucet aerators
- Programmable thermostats or discounted Wireless thermostat (installed at 2nd appointment)



Helping Massachusetts Municipalities Create A Cleaner Energy Future



MassSave.com

Custom Home Energy Report will include all applicable rebates and incentives, such as:

No-cost targeted air sealing of leaks in your home

An instant incentive for **75 % off insulation**
or based on your income, 100% off

Rebates of up to ~~\$3,250~~ **\$2,750** on qualifying energy-efficient heating, cooling, and water heating equipment

The opportunity to apply for **0 percent** HEAT Loan financing for eligible upgrades



Helping Massachusetts Municipalities Create A Cleaner Energy



Personalized Recommendations

You may be offered contracts for Air Sealing, Insulation, Hot Water System and Heating System,

Upgrades, and rebates on refrigerators or more, all of which will translate into savings for you...

0% Interest Heat Loan available



Helping Massachusetts Municipalities Create A Cleaner Energy Future



Two Ways to Participate

Option 1: Lead Vendor + Independent Installation Contractor (IIC)

Your no-cost home energy assessment is completed by an Energy Specialist from one of our Lead Vendors – CET, CLEAResult or RISE. Insulation and air sealing work is then completed by a participating Independent Installation Contractor (IIC).

Your Next Steps: Call 1-866-527-SAVE (7283) to schedule your assessment.

Afterwards, the Energy Specialist will be able to coordinate insulation and air sealing services with an Independent Installation Contractor (IIC), or you can select your own IIC by using our Find a Contractor tool



Helping Massachusetts Municipalities Create A Cleaner Energy



Independent Installation Contractor for Zip Code 01223

Independent Installation Contractor	City	State	Phone	E-Mail	Services Offered
Installed Measures, Inc	Coventry	RI	<u>401-451-8155</u>	<u>insl8@yahoo.com</u>	Insulation and Air Sealing
J.P. George & Son, Inc.	Greenfield	MA	<u>413-774-3604</u>	<u>jpgeorgeandson@outlook.com</u>	Insulation and Air Sealing
Urban & Sons Insulation Co. Inc.	Springfield	MA	<u>413-783-0701</u>	<u>urbanandsonsinsulation@gmail.com</u>	Insulation and Air Sealing



Helping Massachusetts Municipalities Create A Cleaner Energy Future



Two Ways to Participate

Option 2: Home Performance Contractor (HPC)

Your no-cost home energy assessment is completed by a participating Home Performance Contractor (HPC). The same contractor also does the insulation and air sealing work.

Your Next Step: Schedule an assessment with a participating Home Performance Contractor of your choice. Use our [Find a Contractor tool](#).

HPC Contractor	City	State	Phone	E-Mail
Endless Energy	Marlborough	MA	508-357-2354	jessican@goendlessenergy.com



Helping Massachusetts Municipalities Create A Cleaner Energy



DOER's (NEW) Home MVP Pilot Program

- Available from November 1, 2017 to October 31, 2020
- Designed to test an approach different from Mass Save's Home Energy Services program
- Municipal Light Plant (MLP) rebates available
- Differences from Mass Save®
 - Available to MLP customers
 - Contractor driven with open market pricing
 - Home owner and contractor decide the best solution
 - Foam insulation, solar applications and beneficial electrification (e.g. heat pumps) allowed
 - Incentive based on amount of energy saved
 - Incentive paid to contractor; contractor has option of sharing incentive with customer
- Similarities to Mass Save
 - Open-market Mass Save rebates still available
 - Home MVP offers 0% financing similar to Mass Save's HEAT Loan

How to Participate in Home MVP

- Owners or renters of 1 to 4 family homes
- Go to <https://www.mass.gov/guides/home-mvp> or search “MA DOER Home MVP”
- “In This Guide” section, click “Participating Contractors”.
- Call one or more contractors who work in your part of state and describe your project.
- Arrange for one or more contractors to do an energy model for your project and develop a work order.
- Ask about contractor incentive
- Sign the work order to proceed with project.

SRECS have been replaced by the SMART Program

Solar MA Renewable Target

SMART

Solar Mass Renewable Target

- Existing systems covered under SREC or SREC II will see no change
- SREC II has been completely replaced with the SMART Tariffs

Differences between SRECs and SMART:

SREC II

Incentive is market based and thus the value can fluctuate

Value of incentive is added to any value received for energy (net metering)

SMART

‘All in’ compensation is established for qualified projects

‘All in’ compensation is established for both energy + incentive values

Incentive is paid directly to project owner

Incentive is calculated as the ‘all in’ compensation rate net of energy value



Helping Massachusetts Municipalities Create A Cleaner Energy Future



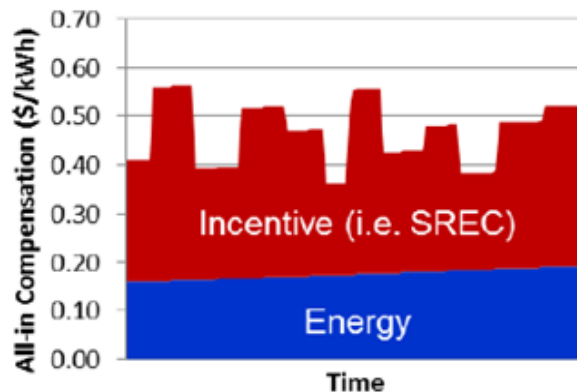
SRECs vs. SMART

SMART = Solar MASS Renewable target

SREC

- SRECs are a tradable commodity with a value that fluctuates based on market conditions:
 - Long-term revenue uncertainty leads to higher financing costs,
 - A large portion of the program costs are going to a 3rd party to pay for financing,
 - Total program costs and ratepayer impacts are difficult to predict.
- SRECs are an additional revenue stream independent of the value of the energy.

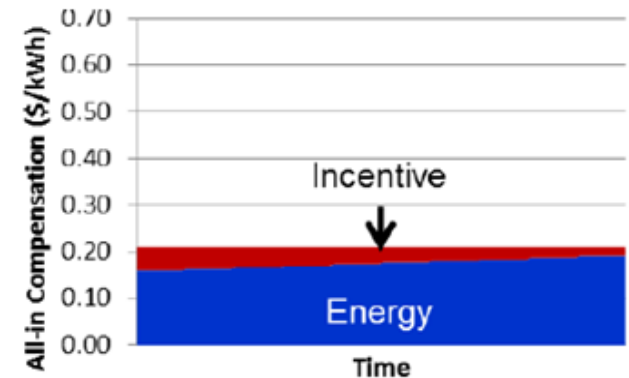
Example of the incentive level in a SREC program



Declining Block Program

- This program provides long-term revenue certainty (10-20 years) which reduces financing risks and in turn, lowers soft costs
 - Total program costs can be predicted with certainty.
 - Incentive declines with the declining cost of solar.
- A solar facility receives a single compensation rate that accounts for both the energy and the incentive.
 - The resulting value of the incentive is the net difference between the all in rate and the value of the energy.

Example of the incentive level in the new program



Adder Values

All adder values will decline by 4% every tranche. First tranche is 80MW.

Location Based Adders	
Type	Adder Value (\$/kWh)
Building Mounted	\$0.02
Brownfield	\$0.03
Floating Solar	\$0.03
Landfill	\$0.04
Solar Canopy	\$0.06

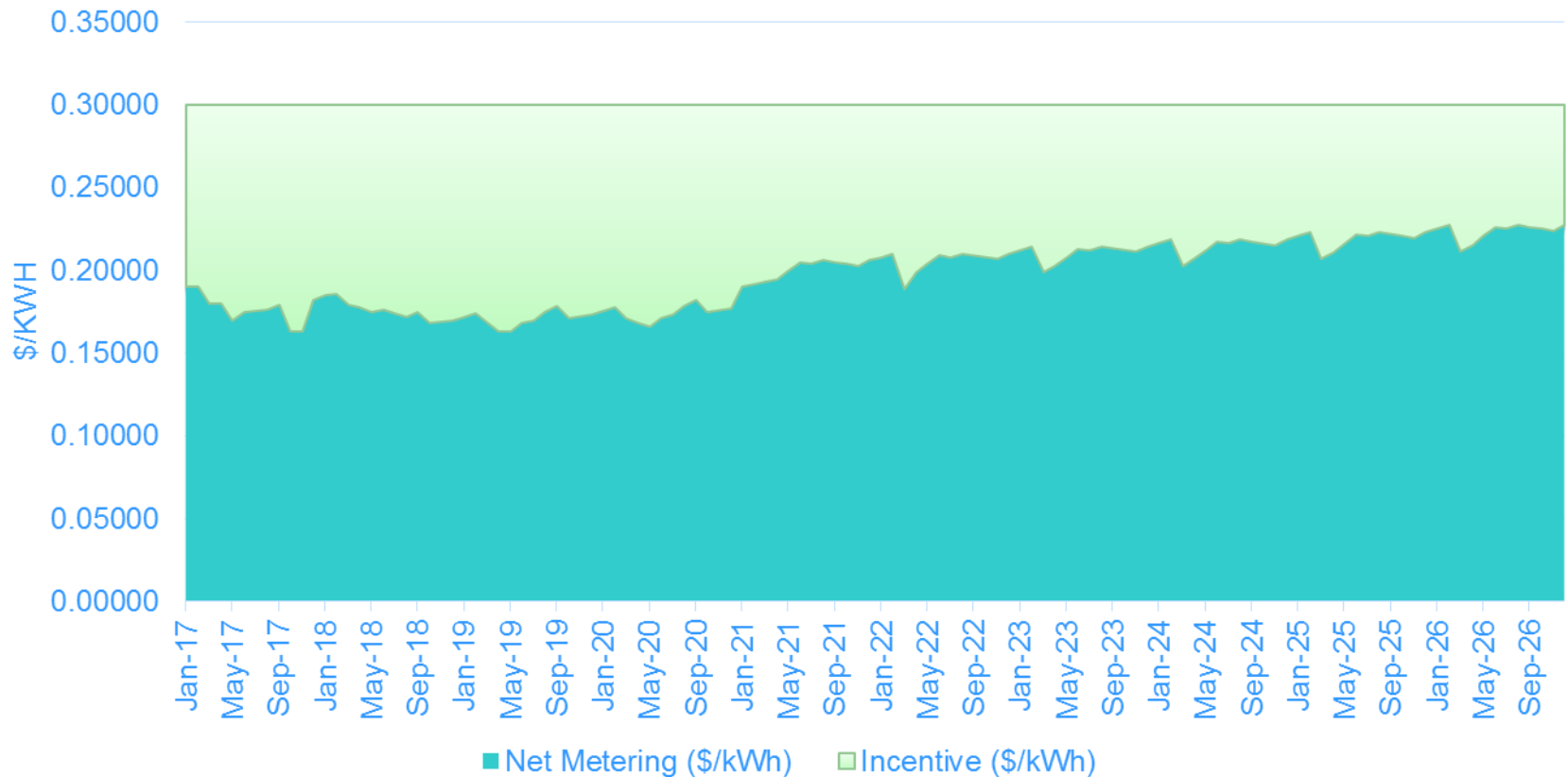
Off-taker Based Adders	
Type	Adder Value (\$/kWh)
Public Entity	\$0.02
Community Shared Solar (CSS)	\$0.05
Low Income Property Owner	\$0.03
Low Income CSS ¹	\$0.06

Other	
Type	Adder Value (\$/kWh)
Storage + PV	Variable
Solar Tracking Adder	\$0.01

1. Must be at least 50% R-2 customers

Small System Tariff

10-year Small NEM System (1-25 kW) Tariff Payments
(National Grid)



Note: Graph is illustrative of how tariff payments would be determined and does not reflect projected values

Creating A Clean, Affordable, and Resilient Energy Future For the Commonwealth

Summary

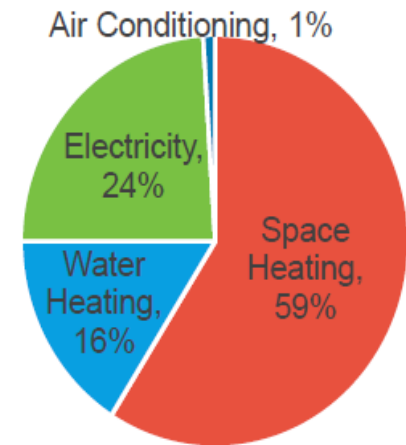
- A group purchasing and community education program for renewable heating and cooling technologies
- Targets residential and small-commercial installations
- Relies on community volunteer leadership
- Based on Solarize Mass model



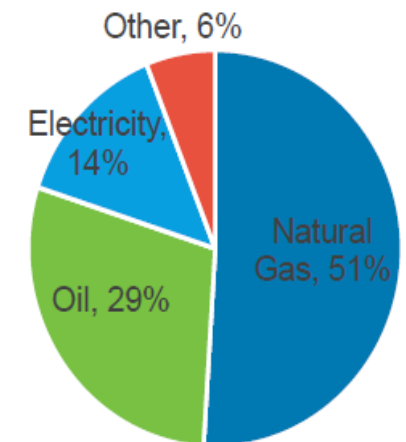
Why target heating?

- Heating represents about a third of Massachusetts' energy use and GHG emissions
- For homes, heating is an even larger portion of energy use.
- In 2015, MassCEC made a \$30 million, 5-year commitment to support clean heating and cooling technologies.
- Heating comprises largest household energy cost
 - Especially burdensome for households that heat with high cost heating fuels (oil, electric resistance, propane)

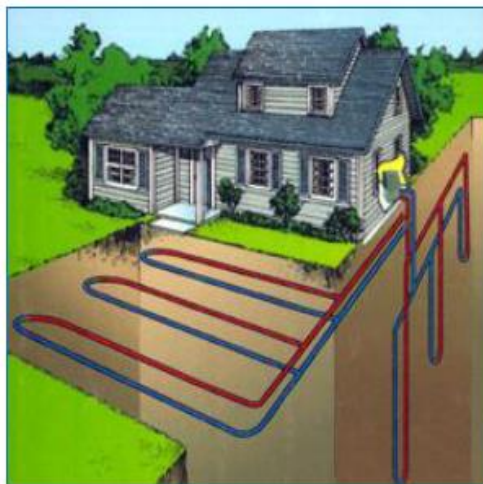
MA Household Energy Use



MA Residential Heating Fuel



- Modern Wood Heat
- Cold-Climate Air-Source Heat Pumps
- Ground-Source Heat Pumps
- Solar Hot Water



BEVs & PHEVs Available Today

BEV= Battery Electric Vehicle



Tesla model 3
200+ mile



Nissan Leaf
150 mile range



Chevrolet Bolt
250 mile range



Smart
100 mile range

PHEV= Plug in Hybrid Electric Vehicle



Mitsubishi Outlander
30 mile battery range



Ford C-Max Energi
15 miles battery range



Chevrolet Volt
50 mile battery range

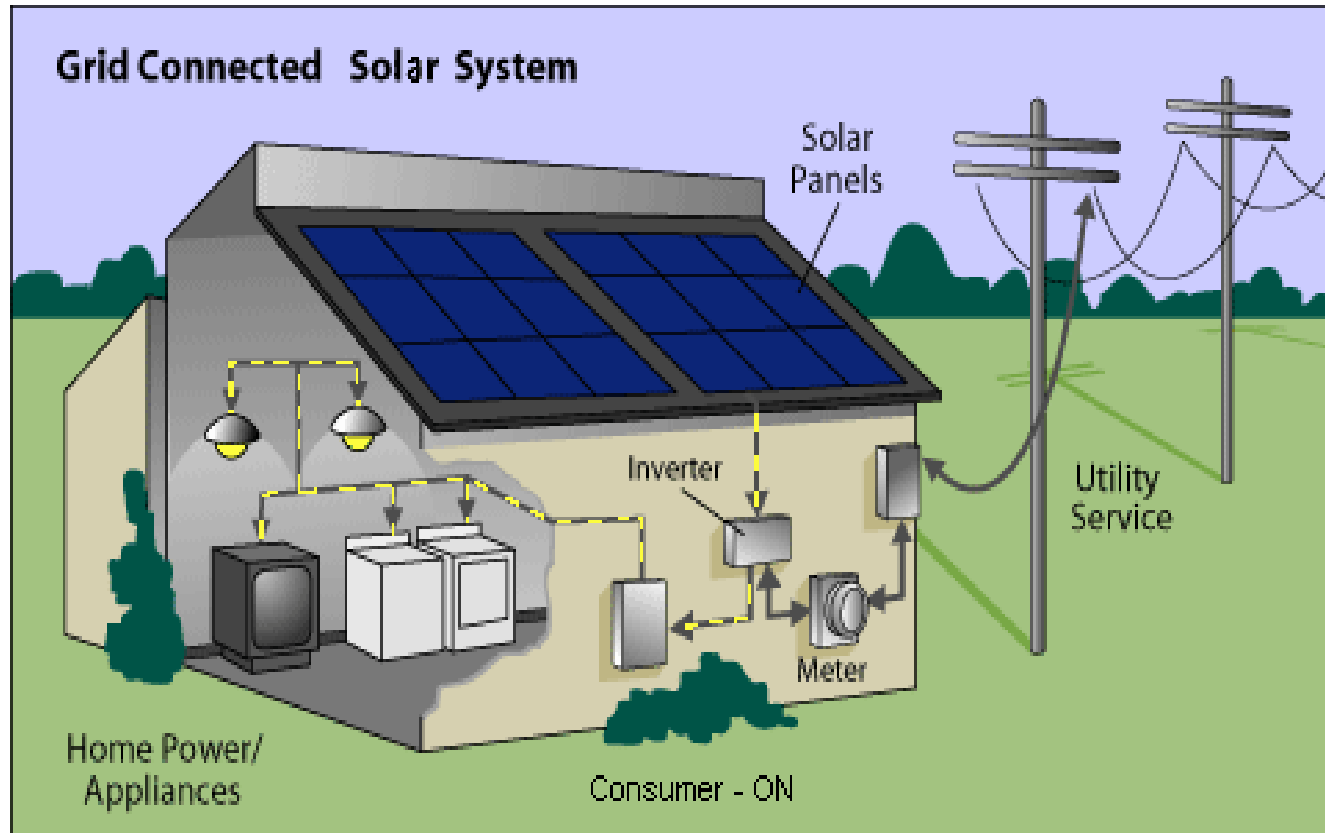
Jimbarry49@gmail.com



Solar PhotoVoltaic (PV) Basics



How Does a Solar PV System Work?



- Grid-connected projects can apply for Net Metering (utility meter spins backwards)
- **If Power outage: Inverter shuts down, unless a battery-back up system is installed**

Net Metering – Basics

- Energy produced by your system but not used by you go back onto the 'grid' & your meter spins backwards
- Energy you get from the 'grid' when the system is not producing makes the meter spin forward
- You pay the NET difference between what you send to the grid and what you take from the grid.
- If you produce more in a month that you use, you get a CREDIT with the utility to be used 'later'
- You are allowed to assign some of those credits to another customer

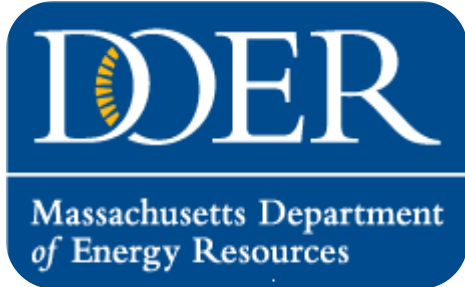
Solar Incentives in Massachusetts

**High electricity prices + Reduced Solar PV Costs +
Numerous Incentives = Economical solar projects**

Incentives
Tax Incentives: Federal (30%) State (15% up to \$1,000)
SREC Sales
Net Metering
Mass Solar Loan
Low/No money down options



www.house-power.com/blog/wp-content/uploads/2009/12/iStock_000009001180XSmall.jpg



Massachusetts Residential Solar Loan Program

www.MassSolarLoan.com

JIM.BARRY@STATE.MA.US

SPRING 2016
UPDATED FALL 2018

Problem Statement and Opportunity

- MA residential solar market has boomed over past 4 years and continued SREC-II program support will maintain this growth.
- Solar financing is essential to maintain market progress.
 - PPA/ Leases are one means of financing which currently serves a majority of the MA residential solar market.
 - For a direct ownership alternative, loans are generally required.
- **Direct ownership of solar by MA homeowners provides substantially greater lifecycle benefits to homeowner and local economy.**
- Convenient access to loan products will further this economic opportunity for homeowners and local lenders.

Borrower Eligibility Homeowner

- Only solar electric (photovoltaic) systems owned by the resident are eligible.
- Third-party lease or power purchase agreements for solar are NOT eligible.
- Loan recipients must meet lender-defined loan qualification standards.
- Solar electric systems must be connected to the electricity distribution grid.
- Solar electric systems may not have previously received incentives from the Massachusetts Clean Energy Center.
- Homes must have had a residential energy audit within the past five years or have one scheduled at the time of loan closing.

Borrower Eligibility

Community Shared Solar

- Minimum requirements to qualify for a Community Shared Solar project include:
 - Participants must demonstrate a direct ownership stake in a solar project as net metering off-taker of 25 kW or less
 - Participants must demonstrate a direct ownership stake in solar project through an LLC, cooperative, or condo association
 - Project must meet Mass Solar Loan program technical eligibility criteria

Income-Based Loan Support

- Consumers with annual household incomes below certain thresholds may be eligible to have the Mass Solar Loan program pay a portion of their loan principal when the project is complete. An independent party will verify household income as part of the qualification process. Eligibility for Income-Based Loan Support is based on total household income (**Tax Return Form 1040 line 22**) as determined by the federal income tax filing for the most recent year available. Incentive rates are shown below. <http://www.masssolarloan.com/loan-support-incentives>

Household Size	<80 Median = 30%	<120 Median = 10%
1	\$47,347	\$71,020
2	\$61,916	\$92,874
3	\$76,484	\$114,726
4	\$91,052	\$136,578

Solar Financing Made Easy

1. Receive a solar price quote from a pre-qualified Mass Solar Loan installer by finding a list of eligible installers and resources to help you choose an installer at www.MassSolarLoan.com.
2. Select an installer and sign a solar installation contract.
3. Work with your installer to complete your Mass Solar Loan technical application online.
4. Provide your tax information online, if you are applying for income-based loan support.
5. Once you receive your technical confirmation document via email, work with a Mass Solar Loan lender to complete your loan application.
6. When your loan closes, your lender advances you 35% of the loan to cover initial construction costs.
7. After your solar system is connected by your utility, your installer files your project completion documents.
8. When the project receives completion approval, you receive the remainder of your loan from your lender.

Financial Example with Grant

- 6 kilowatt system – 23 panels at 260-watt per panel
- Initial price at \$4.00/watt = \$24,000
- Less Moderate Income grant (20% = \$4,800) => \$19,200
- Federal tax credit (30%) = \$5,760; state tax credit \$1,000,
Net Cost = **\$12,440** to borrow at <4-5%
- System generates 6,000 kWhs per year for 6 SRECs each
\$1,500 year (6 @ \$250 each = \$1,500) for 10 years
- Electricity savings/year = 6,000 x .18/kWh = \$1,080
- \$1,500 + \$1,080 = \$2,580 → 4.8 year payback
- \$2580 div by 12 months = \$215.00 month in benefit
- \$12,440 loan for 10 years at 5.5% is \$135.00 a month

LATEST UPDATE Fall 2017

Program is nearing its funding cap

They have received approval for additional funds

Revised program will focus on income eligible folks

There will be a specific 'date certain' for revision
with a 30 days 'notice'

You need to have the loan "closed" at the
participating lender to reserve your current
incentives.

Check their "program updates" page of their website



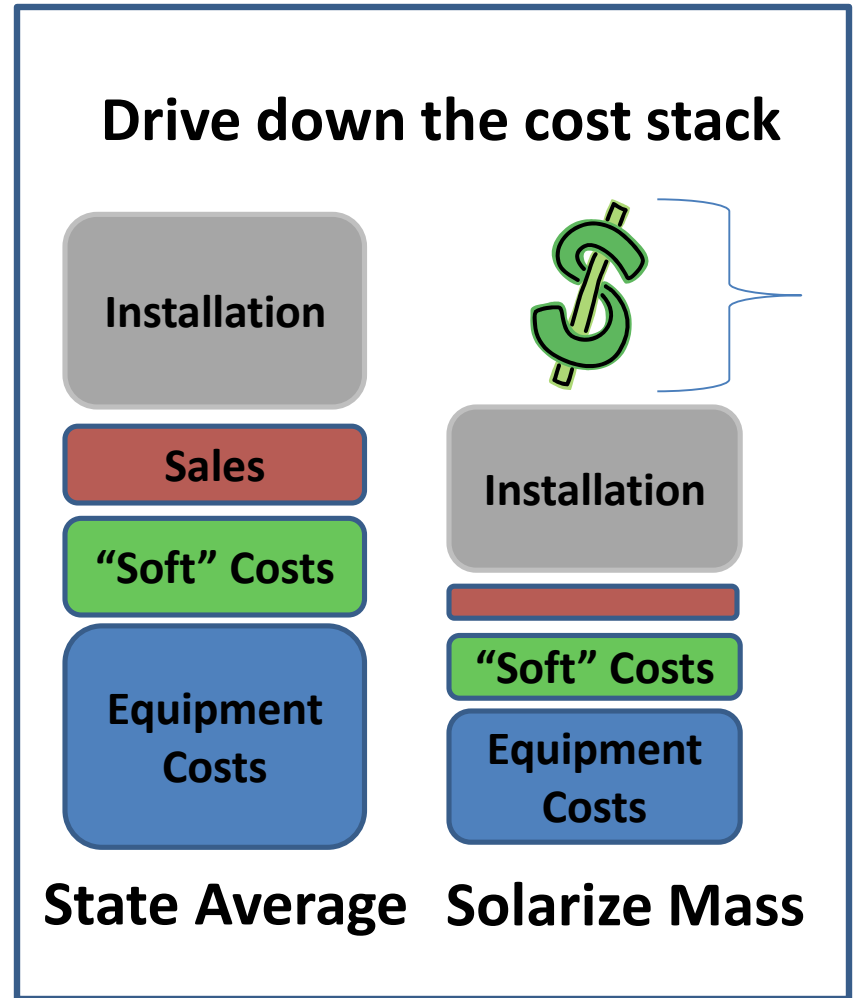
February 2016

What is Solarize?

Solarize is a community based and driven
Education, Outreach, and Group Purchasing program
aimed to increase the adoption of Small-Scale solar
electricity
through a competitive installer selection
and tiered pricing structure that increases savings as
more people sign contracts.

Goals of Solarize Mass

- Support Governor's goal of 1,600 MW by 2020
- Increase education and community outreach
- Model to simplify process
- Reduce installation costs
- Reduce time to contract
- Increase adoption



MassCEC/DOER

Town and Installer RFPs
Engage tech. consultants
Marketing/Education
SRECs

Installer

Free Site Assessments
Tiered Pricing and Ownership Options
Contracting
Installation

Homeowner

Sign up for a site assessment
Talk to neighbors!

Community

Installer Selection
Solar Coach
Volunteers
Outreach



2017 Solarize Mass

Up to 4 towns can partner

Can be Non-contiguous but same region

1,000 + owner occupied homes

\$2,500 grant per town;

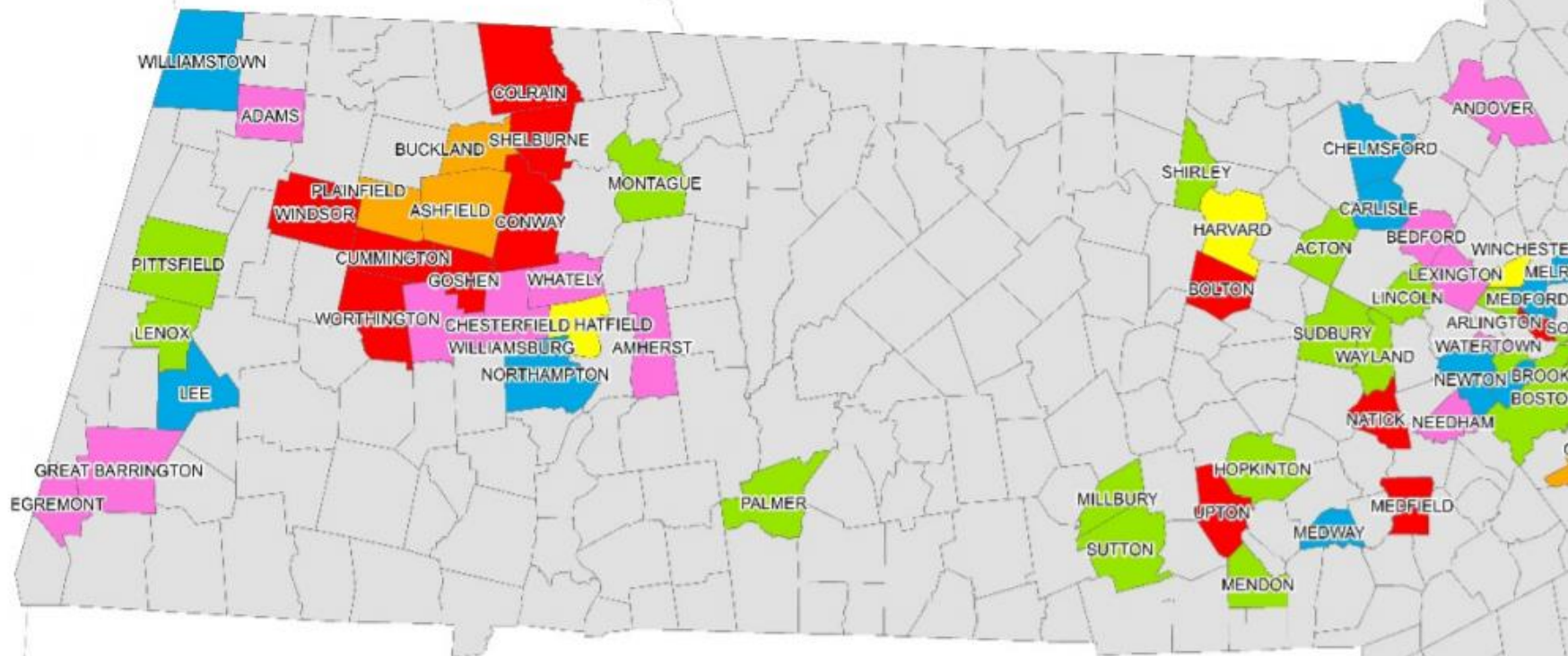
\$0 to \$1,000 per solar coach

Additional \$2,500 grant per town possible

Training; tech support; conference calls

Communities do Request For Proposals (RFP)

Application to Mass Clean Energy Center:



NEW 2017 Solarize PLUS

MassCEC has enhanced and combined the Mass Solarize Program with the Heat Smart Program to create a new Solarize PLUS Program.

Works like Solarize but a municipality would pick Solar PV as well as one of the Renewable Heating systems.

Some towns have chosen Solar Electric PLUS Solar Hot Water.
Other towns have chosen Solar Electric PLUS Air Source Heat Pumps.
The idea is that you can help educate the residents on more than one technology and also offer the benefit of 'group discount' on more than one technology.

A resident can choose one or the other or both .

EV Anyone ??

The **Massachusetts Offers Rebates for Electric Vehicles (MOR-EV)** program provides incentives to Massachusetts drivers who purchase or lease for 36 months a new qualified electric vehicle. For a complete list of eligible vehicles and information about the MOR-EV program, learn more at www.mor-ev.org

Rebates of up to \$2,500 are available to Massachusetts residents who purchase or lease a qualified vehicle.

mor-ev.org/eligible-vehicles

These are the MOR-EV consumer rebate eligible vehicles:

BEVs



Plug in Hybrids



www.morev.org

DOER