



COMMONWEALTH OF MASSACHUSETTS

*Charles Baker, Governor
Matthew Beaton, Secretary EOEAA
Judith Judson, Commissioner DOER
Dan Knapik, Director GCD*

*Becket Energy Fair
October 2016*

*Jim Barry – Regional Coordinator
Green Communities Division
Department of Energy Resources
Executive Office Energy and Environmental Affairs*

Green Communities Division

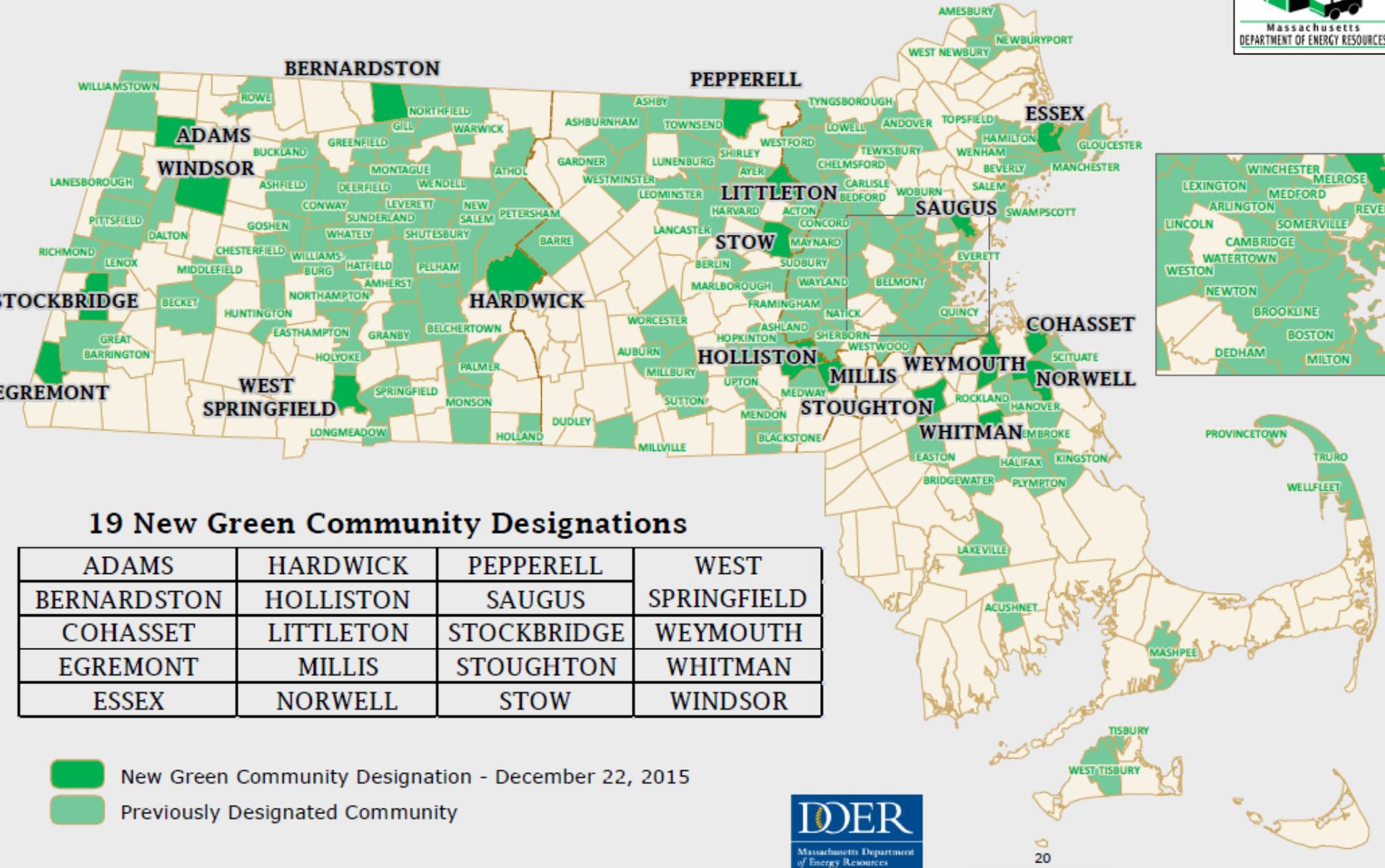
Serves as the hub for **all** Massachusetts cities and towns on energy matters



Helping Massachusetts Municipalities Create A Cleaner Energy Future



GREEN COMMUNITY DESIGNATIONS REACH ONE HUNDRED FIFTY-FIVE



19 New Green Community Designations

ADAMS	HARDWICK	PEPPERELL	WEST SPRINGFIELD
BERNARDSTON	HOLLISTON	SAUGUS	WYOMOUTH
COHASSET	LITTLETON	STOCKBRIDGE	WHITMAN
EGREMONT	MILLIS	STOUGHTON	WINDSOR
ESSEX	NORWELL	STOW	



New Green Community Designation - December 22, 2015

Previously Designated Community



20

Miles

Green Communities Designation and Grant Program – the 136

- Grant allocations based on a \$125K base plus a population/per capita income formula; maximum \$1M.
 - Range from \$130,725 in Hatfield to \$1M for Boston
 - **Becket received a grant amounting to \$141,000**
- Close to \$60M awarded in total for both designation and competitive grants programs
- Projects being funded include energy conservation measures, solar PV projects, incremental costs for hybrid vehicles.
- 208 projects complete to date (102 designation, 106 competitive)
 - Total Project Costs - \$65.4M
 - Total GC grant funds used - \$39.2M
 - Total Utility incentives - \$11.3M
 - Projected annual savings \$8.69M
 - Projected annual savings (MMBTU) –248,538 which = 2,217 homes

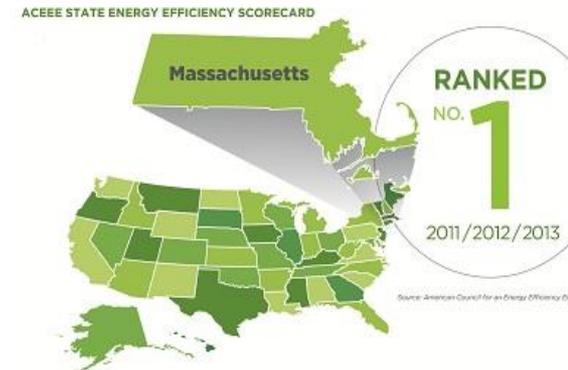


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Energy Efficiency as our First Fuel

- All cost effective energy efficiency
- Statewide energy efficiency programs are offered to all customer segments under Mass Save® brand
- High performance buildings (ZNEB, stretch code)
- Ranked #1 by ACEEE (2011-2015) for our energy efficiency programs and policies
- Accelerated Energy Program investing in energy improvements in 700 state sites, to save \$43M annually



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MassSave.com

First Step: NO-COST Energy Assessment Too Good to be True? Big Comfort and Fast Savings!

- Trained Professional - Personalized Report
- Covers Insulation cost 75% up to \$2,000
- 0% Interest HEAT Loan
- Generous Rebates on hot water systems, refrigerators and more
- 8 Hours of Air Sealing – FREE!
- Free Energy Efficient Lights
- Water Conservation Devices
- Heating System Combustion Safety Test



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Home Energy Assessments



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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

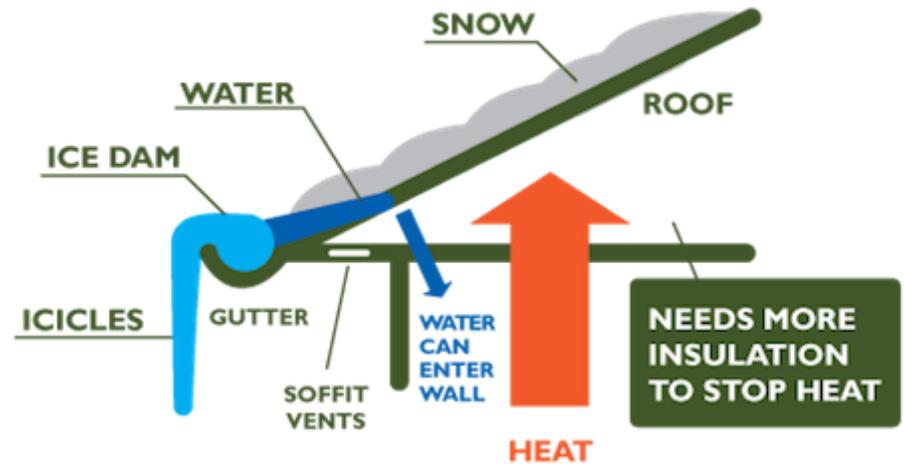


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Heat Lose Causes Ice Dams

The Problem.....



The Solution....

Keep the Heat In & the Roof Cold



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Solution for Heat Loss: Air Sealing



Solar PhotoVoltaic (PV) Basics



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Solar Incentives in Massachusetts

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

Incentives

Tax Incentives:
Federal Tax Credit - 30%
State (15% up to \$1,000)

Net Metering

SRECs (or something)

Mass Solar Loan

Low/No money down options



www.ho

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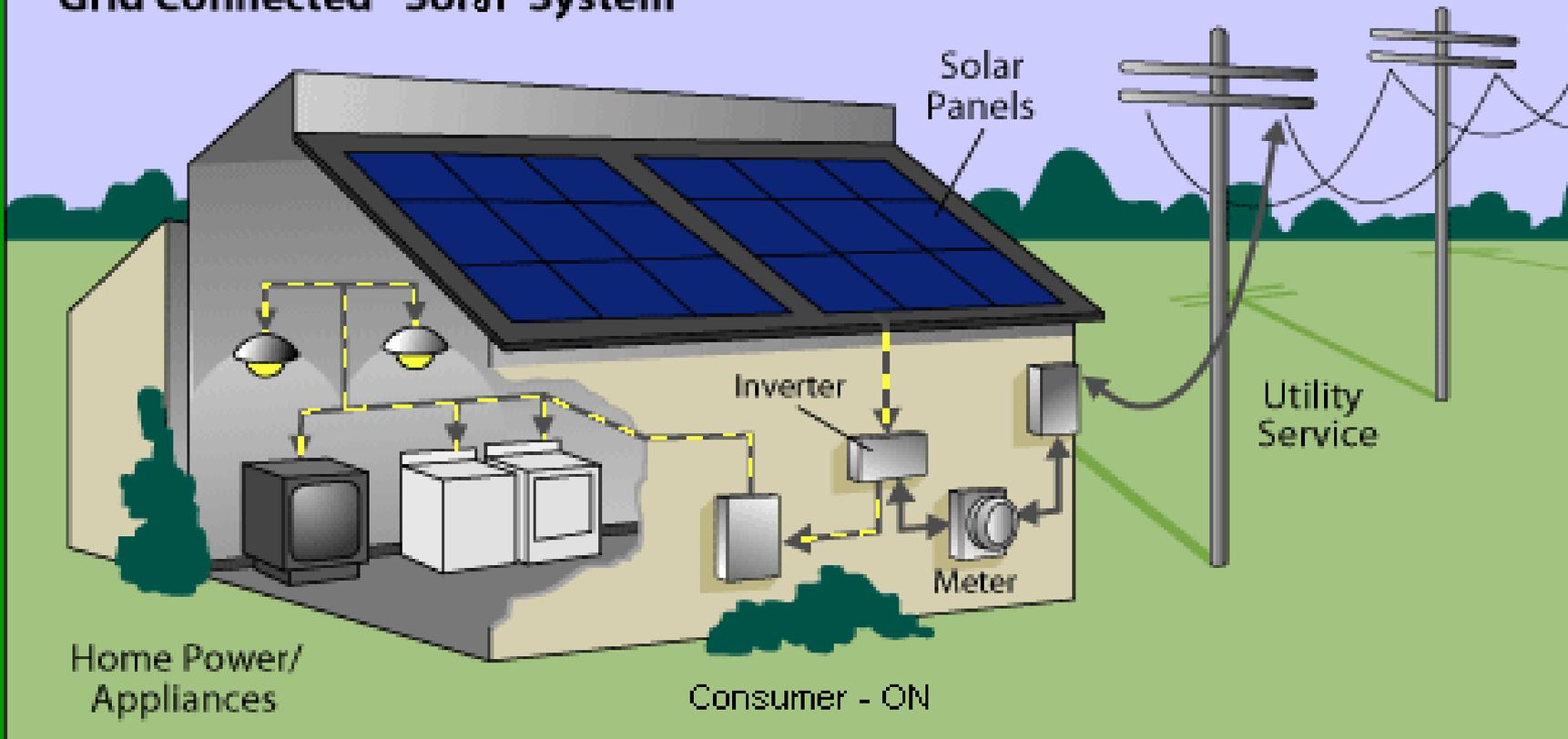


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How Does a Solar PV System Work?

Grid Connected Solar System



Grid-connected projects can apply for Net Metering

Power outage: Inverter shuts down, unless a battery-back up system is installed



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Net Metering

- Allows you to get credit for excess electricity generated by your system
- Meter spins forward when you are getting electricity from the grid (nighttime) and it spins backwards when you are sending excess electricity to the grid (sunny afternoon when you cannot use all of the electricity generated)
- Credits earned can be applied to your own bill in later months (winter) &/or applied to someone else's bill (mother-in-law, church...)
- Residential systems not impacted by “cap”



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SRECS are sun setting

- Current SREC II program will end when it's replacement is finalized (summer 2017)
- Tariff based (predictable) incentive. That is, a qualifying project will know exactly how much to expect over the over the next 10-15 years
- Different categories based on size, location, off-taker status (CSS, low-income CSS...)



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Illustrative Tariff Values

Capacity Based Tariff Rates (kW AC)		
System Capacity	Incentive (\$/kWh)	Term Length
Less than or equal to 25 kW AC (Low Income) ¹	\$0.35	10-year
Less than or equal to 25 kW AC	\$0.30	10-year
>25 - 250 kW AC	\$0.23	15-year
>250 - 1,000 kW AC	\$0.18	15-year
>1,000 - 5,000 kW AC	\$0.15	15-year

1. Must be an R-2 customer to qualify

Note: These are proposed values and are not necessarily indicative of final tariff rates



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Illustrative Tariff Adder Values

Location Based Adders		Off-taker Based Adders	
Type	Adder Value (\$/kWh)	Type	Adder Value (\$/kWh)
Building Mounted	\$0.02	Community Shared Solar (CSS)	\$0.04
Brownfield/Landfill	\$0.03	Low Income Property Owner	\$0.04
Solar Canopy	\$0.04	Low Income CSS ¹	\$0.06

Policy Based Adders	
Type	Adder Value (\$/kWh)
Behind-the-Meter Energy Storage ²	\$0.03
Standalone Solar + Energy Storage	\$0.05
Non-Net Metered	\$0.05

1. Must be at least 25% R-2 customers (extra \$0.01/kWh for each additional 25% of off-takers consisting of R-2 customers)
2. Must be connected to the meter of a customer with a minimum amount of load to be determined

Note: These are proposed values and are not necessarily indicative of final tariff rates

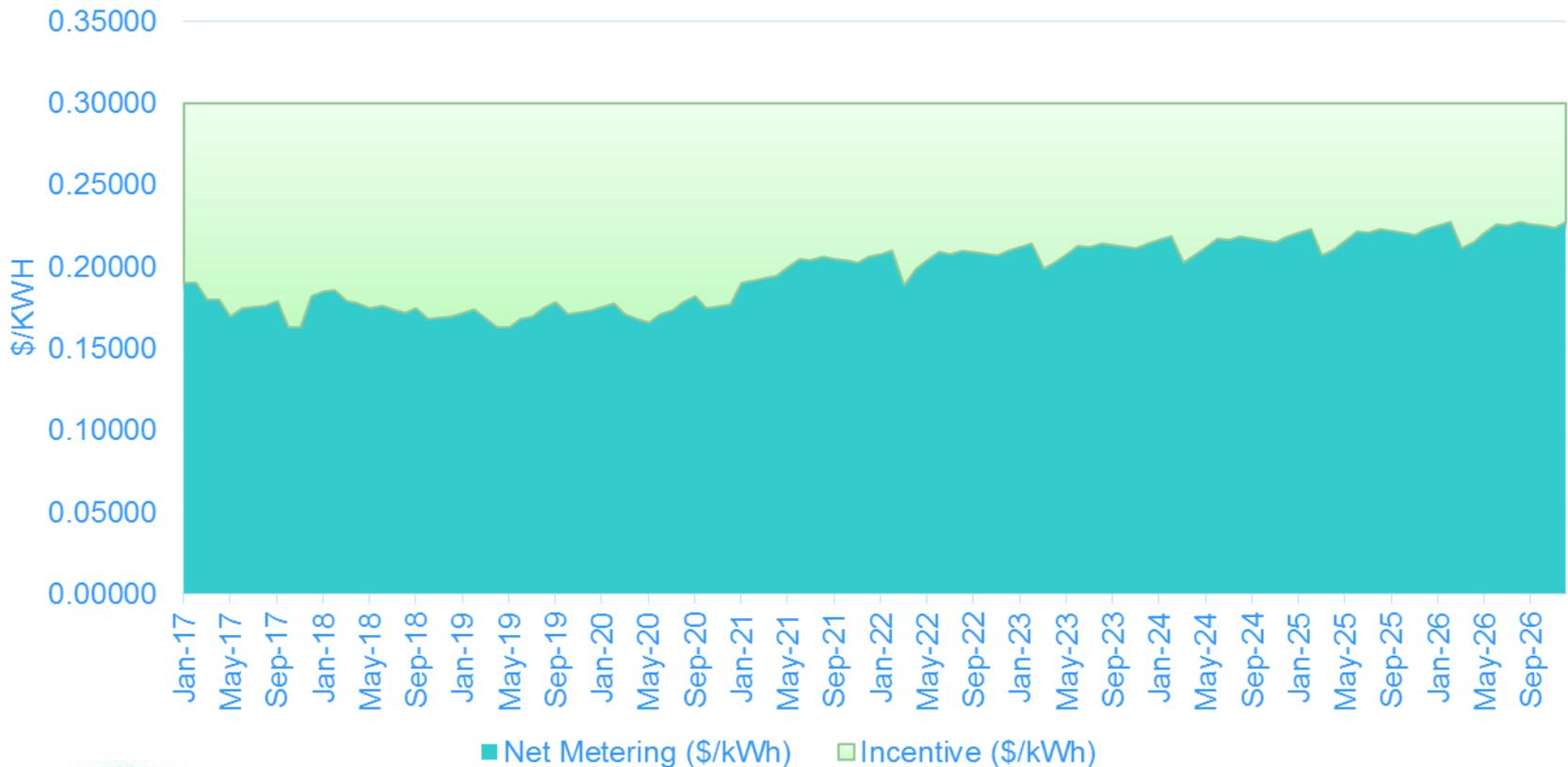


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Small System Tariff

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

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Mass Solar Loan Program Overview

- \$30 million program aimed at increasing lending for residential solar
- Incentivizing direct-ownership of residential projects
 - Provides greater lifecycle financial benefit to homeowner and local economy
- Combination of an interest rate buy down and a loan loss reserve
- Hoping to provide financing for lower FICO score customers
- www.MassSolarLoan.com



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Low/No Money Down Options

- Host Customer signs a Power Purchase Agreement or Lease with Third-Party Owner
- Contracts for a \$/kWh price **or** monthly lease price
- Price can be cheaper than **current** electricity costs
- No or little upfront cost to Host Customer
- Hedge against future increases in electricity prices
- Third-Party pays all upfront installation costs and provides O&M
- Contracts are generally for 20 years
- May have a buyout option



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CH&C Technologies

Technologies

- Solar Thermal
- Biomass Heating
- Cold-Climate Air-Source Heat Pumps
- Ground-Source Heat Pumps



Solar Hot Water & Solar Heating

Residential Program:

- Rebates up to \$6,000, depending on size, efficiency
- Typically for domestic hot water, sometimes supplementing heating

Commercial-Scale Program:

- Rebates up to \$100,000
- Domestic hot water
- Also process, agricultural applications



Central Biomass Heating

Residential Program:

- Rebates up to \$16,500, depending on cost
- Strict PM emissions and efficiency requirements
- Currently only pellet boilers

Commercial-Scale Program:

- Rebates up to \$250,000
- Strict PM emissions, efficiency, and fuel requirements
- Pellet and wood chip boilers
- Replacement for hydronic heating systems



Air-Source Heat Pumps

Residential Program:

- Rebates up to \$6,000
- Highest efficiency, cold-climate ASHPs
- Typically “mini-splits”



Commercial-Scale Program:

- Rebates up to \$225,000
- Currently, residential-scale technologies
- Expanding to large-scale technologies soon
- Flexible distribution system applications

Ground-Source Heat Pumps

Residential Program:

- Rebates up to \$16,500, depending on size, efficiency
- Highest EPA efficiency ratings required

Commercial-Scale Program:

- Rebates up to \$250,000
- Highest efficiency technologies
- Typically forced air or VRF distribution





Massachusetts Clean Energy Center *Clean Heating & Cooling Programs*

www.masscec.com/programs/clean-heating-and-cooling

- Air-Source Heat Pumps: ASHP@masscec.com
- Central Biomass Heating: biomassthermal@masscec.com
- Ground-Source Heat Pumps: GSHP@masscec.com
- Solar Heating and Hot Water: solarhotwater@masscec.com

CH&C Hotline: 617-315-9357

Cleaner Vehicles & Fuels

- Charging Stations
- License Plates
- Incentives
 - MassEVIP - fleets
 - Clean Vehicle Program
 - EV School Buses
- **NEW \$7500 for citizens buying electric cars**
- **NEW money for employers to install charging stations**
- **BEV, PHEV, ZEM**



www.mor-ev.org



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COME DRIVE AN ELECTRIC VEHICLE

Please join your neighboring communities as they discuss the role of ELECTRIC VEHICLES (EVs) and CHARGING STATIONS in their fleets. Come to learn how your municipal fleet can incorporate EVs. Bring all those interested in learning about EVs and grant funding available through the MassEVIP Fleets program! A RIDE AND DRIVE to follow the workshop.

where:

The Dalton Senior Center
40 Field Street Extension
Dalton, MA 01226

when:

Wednesday
November 2nd
1PM – 3PM

r.s.v.p.

To: Ms. Sejal P. Shah
(617) 556-1015 OR e-mail
sejal.shah@state.ma.us



Thank you !

- www.mass.gov/energy/greencommunities

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