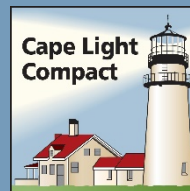


# SOLAR DOMESTIC HOT WATER HEATING SYSTEM REBATE PRE-APPROVAL APPLICATION

Valid January 1, 2021-December 31, 2021



Questions regarding this application should be directed to 1-800-797-6699.

## STEPS TO APPLY FOR A REBATE

1. Cape Light Compact ("Compact") strongly encourages you to arrange for a Solar Hot Water Site Assessment to help you determine if a solar hot water system is suitable for your location and budget. Please visit [sebane.org](http://sebane.org) for a qualified professional.
2. You must currently use an electric hot water storage heater with year-round residency.
3. Homeowners must have fully participated in the Mass Save® Home Energy Assessment.
4. The Compact recommends soliciting at least 3 bids for your solar hot water system from installation contractors.
5. Make sure your installation contractor designs the system according to the system requirements specified in this application.
6. Complete and mail this application including the savings calculation worksheet, along with a copy of the bid from the installation contractor, equipment specifications and warranty information, to the address at the end of the application.
7. Installer must demonstrate the use of non-corrosive materials for the coastal climate.
8. Do not purchase, order, or install any equipment until you have been notified that the application has been approved!
9. Within 30 days of receiving a complete application, we will notify you if your application has been approved. You will also receive a Notice of Installation that you will need to complete and send in after your system has been installed.
10. Install the system and ensure installation meets all applicable local, state, and national codes and has the appropriate permits. You have one year to install the system and submit the completed Notice of Installation.
11. To receive the rebate payment, send the Notice of Installation to the address at the end of the application.

## APPLICANT INFORMATION -- Complete all appropriate fields. Please print.

Residential Owner	Contact Phone	Contact Email	
Mailing Address	City	State	Zip
Installation Address (no PO boxes)	City	State MA	Zip
Number of People in Household	Number of Bedrooms		
Is this a new home/building? <input type="checkbox"/> Yes <input type="checkbox"/> No	Current space heating fuel type: <input type="checkbox"/> Natural Gas <input type="checkbox"/> Propane <input type="checkbox"/> Oil <input type="checkbox"/> Electric <input type="checkbox"/> Other:		
Annual Residential Household Demand (kWh):	Daily Household Draw (Gallons):		
Existing Water Heater Manufacturer:	Model Number:	Capacity (Gallons):	

## INSTALLATION CONTRACTOR INFORMATION

Company Installing the system	Lead Installer's Name		
Mailing Address	City	State	Zip
Company's Phone	Company's Fax	Email	

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## EQUIPMENT INFORMATION - All fields are required

Estimated Installation Date		Estimated Total Installation Cost	
Collector Type <input type="checkbox"/> Flat Plate <input type="checkbox"/> Evacuated Tube		Number of Collectors	<input type="checkbox"/> Roof Mount <input type="checkbox"/> Ground Mount
Collector Manufacturer	Collector Model Number	Collector Compass Direction (in degrees)	
Collector Tilt Angle (in degrees from horizontal)	% Shading from 10am - 2pm (attach shading diagram)	Estimated kWh Savings/Year	
Solar Storage Tank Manufacturer	Solar Tank Model Number	Solar Tank Volume	
Back-Up Water Heater    Manufacturer: _____ Model Number: _____ Storage: _____ gallons Fuel Type: <input type="checkbox"/> Natural Gas <input type="checkbox"/> Propane <input type="checkbox"/> Oil <input type="checkbox"/> Electric Resistance <input type="checkbox"/> Electric Heat Pump <input type="checkbox"/> Other: _____			
Pump Manufacturer: _____ Model Number: _____ Horsepower: _____		<input type="checkbox"/> DC Power <input type="checkbox"/> AC Power	
If 2nd Pump Manufacturer: _____ Model Number: _____ Horsepower: _____		<input type="checkbox"/> DC Power <input type="checkbox"/> AC Power	
Solar Heating Output (kWh)*:		*Installer calculated. Please include the vendor calculation as an attachment.	

## DETERMINING THE REBATE LEVEL

All of the information requested on the Cash-Back Reward application must be completed. The rebate is based upon family size and can only be used on new installations. Please see the chart below for rebate.

<input type="checkbox"/> Family of 1 or 2 \$500	<input type="checkbox"/> Family of 3 \$750	<input type="checkbox"/> Family of 4 \$1,000	<input type="checkbox"/> Family of 5 \$1,250	<input type="checkbox"/> Family of 6 or more \$1,500
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## TERMS AND CONDITIONS

1. Eligibility. Year-round residents are eligible if their renewable energy system will displace electricity from a domestic hot water storage heater.
2. Location of System. The renewable energy system must be installed on the property of an eligible customer, and the property must be located in the service territory of Cape Light Compact.
3. Approval. An application must be approved before any equipment is ordered, purchased or installed. Within 30 days after we receive a complete application, we will send you a letter notifying you if your application has been approved.
4. Rebate Amount. The rebate will be determined by the number of people in the household.
5. System Requirements. The renewable energy system must be designed and installed to meet the "System Requirements" described in this application. The renewable energy system must comply with all applicable federal, state and local codes governing the installation and operation of renewable energy systems.
6. Notice of Installation. The Rebate will be paid after the system has been installed and you have submitted a completed Notice of Installation. The Rebate will be paid within 60 days of receipt and acceptance of the completed Notice of Installation. Prior to honoring any rebate, Cape Light Compact has the right to conduct an on-site verification that the equipment was installed according to the guidelines of the program. It does not include any kind of safety review or code enforcement and should not be relied upon as one.
7. Warranties. Cape Light Compact does not endorse, guarantee or warrant any particular contractor, manufacturer or product installation.
8. Changes to the Rebate Program. Program funds are limited and subject to change without prior notice. Rebate offers may increase or decrease at any time.
9. Tax Liability. Participants of the program may be subject to tax liability for the value of goods and services received through the program pursuant to state or federal income tax codes.
10. No Tax Liability to Cape Light Compact. Cape Light Compact is not responsible for any tax liability which may be imposed as a result of receipt of the rebates by Cape Light Compact to the customer.
11. Liability. Cape Light Compact is not responsible for any loss or damage that may be caused as a result of the installation of the equipment. Please Note: This completed form must be submitted and approved by Cape Light Compact before any equipment is ordered, purchased or installed.



## SAVINGS CALCULATION WORKSHEET

## Baseline (DOE Calculation for Electric Resistance Water Heater)

<u>Inputs</u>	<u>Value</u>	<u>Notes</u>
Rated Storage Volume (Vr) (Gallon)		User Input
Draw Pattern		User Input i.e. Number of draws, flow rate, timing of draws
Volume of hot water drawn (V) (Gallon)	55.00	User Input based from Table 1
Water density ( $\rho$ ) (lb/gallon)	8.24	Source: CFR: Title 10, Pt. 430, Subpt. B, App. E.*
Specific heat of water ( $C_p$ )(Btu/lb)	1	Source: CFR: Title 10, Pt. 430, Subpt. B, App. E.*
Difference between inlet and outlet temp ( $\Delta T$ )	67.00	Source: CFR: Title 10, Pt. 430, Subpt. B, App. E.*
Uniform Energy Factor (UEF)		Calculated based on table 2 below

<u>Output</u>	<u>Value</u>	<u>Notes</u>
Annual Energy (BTU)		Calculated = $365 * (V)(\rho)(C_p)(\Delta T) / UEF$
Annual Energy (kWh)		Calculated = Annual Energy (BTU) * 0.000293071

\*Available at: <https://www.govinfo.gov/content/pkg/CFR-2016-title10-vol3/pdf/CFR-2016-title10-vol3.pdf>

## Solar Hot Water Heater Auxiliary Annual Load

Solar output can range by product, so this field should be vendor calculated.

<u>Inputs</u>	<u>Value</u>	<u>Notes</u>
Solar heating output (kWh)		Installer Calculated Input
Annual Residential household demand (kWh)		Installer Calculated Input
Percent of annual heating demand covered (%)		Installer Calculated Input
Auxiliary Heating System		Heat Pump or Electric Resistance
Auxiliary System Efficiency (%)		Input 100% if the home uses an electric resistance heater or 200% for heat pump.

<u>Output</u>	<u>Value</u>	<u>Notes</u>
Auxiliary annual load (kWh)		$= [(Total\ household\ demand) - (Solar\ Heating\ Output)] / (Auxiliary\ System\ Efficiency)$



Table 1 Volume based on Draw Pattern

<u>Applicable Draw Pattern</u>	<u>V = the volume of hot water drawn (Gallons)</u>
very-small-usage	10
low-usage	38
medium-usage	55
high-usage	84

Table 2 Electric Storage Water Heater Conservation Standards

<u>Rated Storage Volume (Gal)</u>	<u>Draw Pattern</u>	<u>Uniform Energy Factor</u>
<20	Very Small	0.78 - ( 0.0013 x Vr)
	Low	0.89 - ( 0.0008 x Vr)
	Medium	0.91 - ( 0.0007 x Vr)
	High	0.93 - ( 0.0006 x Vr)
≥20 and ≤55	Very Small	0.88 - ( 0.0008 x Vr)
	Low	0.93 - ( 0.0003 x Vr)
	Medium	0.93 - ( 0.0002 x Vr)
	High	0.93 - ( 0.0001 x Vr)
>55 and ≤120	Very Small	1.92 - ( 0.0011 x Vr)
	Low	2.04 - ( 0.0011 x Vr)
	Medium	2.12 - ( 0.0011 x Vr)
	High	2.24 - ( 0.0011 x Vr)
>120	Very Small	0.68 - ( 0.0003 x Vr)
	Low	0.86 - ( 0.0006 x Vr)
	Medium	0.9 - ( 0.0007 x Vr)
	High	0.94 - ( 0.0007 x Vr)

## SOLAR DOMESTIC HOT WATER HEATING SYSTEM REBATE PRE-APPROVAL APPLICATION



### SYSTEM REQUIREMENTS

**Professional Installation:** System must be installed by qualified installer as listed on SEBANE or NESEA. Product literature, system description and maintenance instructions must be provided to the customer.

**Local Building Code:** System owners must adhere to building permit requirements by their local jurisdiction. Where applicable, the system must have an approved building permit and be inspected upon completion.

**Collectors:** Collectors must be rated by the Solar Rating and Certification Corporation (SRCC) or ENERGY STAR qualified. Collectors must comply with warranty requirements of ENERGY STAR qualified solar hot water heaters. Flat plate collectors must have a tempered glass glazing.

**Fuel Saved/Displaced:** The renewable energy system must be saving or displacing electricity. Systems saving or displacing other fuels are not eligible. System: Must be a pressurized antifreeze system or a drainback system utilizing antifreeze. The primary function of the system is to provide domestic hot water service.

**Plumbing: Pressurized Systems:** All piping between the collectors and the heat exchanger must be copper or stainless steel and insulated with insulation rated to withstand over 250 degrees and jacketing capable of withstanding moisture, ultraviolet radiation and environmental exposure. The balance of system piping may be either copper, stainless steel or cross-linked polyethylene (Pex) (rated to at least 200 degrees F at 100 pounds per square inch) and insulated with insulation rated to withstand 200 degrees F and jacketing capable of withstanding moisture, ultraviolet radiation and environmental exposure. All piping must be supported every six feet for copper pipe and every three feet for Pex pipe. A back check valve must be installed in the solar loop. All fittings, valves and gauges must be copper, bronze, stainless steel or brass. All materials should be non-corrosive in the coastal environment. **Drainback Systems:** All piping between the collectors and the heat exchanger must be copper or stainless steel and insulated with insulation rated to withstand over 200 degrees and jacketing capable of withstanding moisture, ultraviolet radiation and environmental exposure. The balance of system piping may be either copper, stainless steel or cross-linked polyethylene (Pex) (rated to at least 200 degrees F at 100 pounds per square inch) and insulated with insulation rated to withstand 200 degrees F and jacketing capable of withstanding moisture, ultraviolet radiation and environmental exposure. All fittings, valves and gauges must be copper, bronze, stainless steel or brass. All drainback piping to and from collectors must have at least a 3/4 inch inside diameter and be mounted with at least a 1/4 inch drop in slope per foot. All piping must be supported every four feet for copper pipe and every three feet for Pex pipe.

**Collector Mounting:** Collectors on a pressurized system must be mounted at an angle of at least 20 degrees from horizontal. Collectors on a drainback system must be mounted at an angle of at least 40 degrees from horizontal. Collectors must be securely fastened to their mounting structure (roof or rack). If a tilt rack raises the top of the collectors above the roof, the mounting hardware must be bolted to reinforced framing members in the roof or rafter where the bolt has a minimum of three inches grab (if reinforced framing is less than three inches, bolts must have nut and washer). If it is not possible to reinforce the roofing system, a rail may be added to the top of the roof, the rail lag bolted to the roof rafters and the collectors bolted to the rail.

**Balance of System:** For all pressurized systems, the closed loop must be fitted with the following components: pressure relief valve, expansion tank and pressure gauge. For pressurized systems: the solar fluid must be propylene glycol and provide burst protection to at least -60 degrees F (-28 degrees F "no slush" condition). For drainback systems: the solar fluid must be propylene glycol and provide burst protection to at least -20 degrees F (9 degrees F "no slush" condition). For all systems: a temperature gauge must be installed at the outlet of the storage tank on the feed to the backup water heater. There must be a back-up system for heating water. The domestic hot water piping downstream of the backup water heater must be fitted with a tempering valve to limit the maximum temperature of the hot water to a set point of 120 degrees F (adjustable). The tempering valve may be installed before the feed to a backup water heater without storage (per manufacturer's specifications).

**Performance Testing:** Cape Light Compact reserves the right to test systems prior to rebate payment. The system must be tested between 10AM and 2 PM on a mostly sunny day to verify that the system is in service. Performance testing will be provided at no cost to the customer and will consist of checking those items set out in the System Requirements. If the system does not pass, the customer and installer will be notified immediately of the deficiencies and given 30 days to correct deficiencies (and still be eligible for the Rebate). The second performance test will be at the installation contractor's expense. Eligibility for the reward after 30 days will be at the discretion of Cape Light Compact. In addition, Cape Light Compact may request system performance information for up to seven (7) years.

**Two-Year Installation Warranty:** The system must include at least a two-year installation warranty that covers any defect in the workmanship of the installation at no charge to the owner.

**Equipment Warranty:** In accordance with ENERGY STAR qualification, warranty should be greater than or equal to 10 years on solar collector(s), 6 years on storage tank(s), 2 years on controls, and 1 year for piping and parts.

**Usage:** Systems must be designed to provide domestic hot water to a year-round home on Cape Cod or Martha's Vineyard. Space heating usage is permitted if connected to a water heating process but the space heating load will not be considered when calculating the reward.

### SIGNATURE

I certify that I have performed or reviewed this analysis and any accompanying documentation, and the information is reasonable and accurate. I further certify the unit(s) is to be installed at the indicated installation address. I have read the terms and conditions associated with this program. I am providing the requested information solely to be eligible to participate in this program and request that the personal information supplied by me be treated as confidential to the maximum extent possible.

\_\_\_\_\_  
Resident Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Installer Signature

\_\_\_\_\_  
Date

Send complete Rebate Application to:

Cape Light Compact  
ATTN: Solar Domestic Hot Water  
261 Whites Path, Unit 4  
S. Yarmouth, MA 02664