

# Intermediate and Large Solar Hot Water Systems in the Massachusetts Alternative Portfolio Standard

The Alternative Energy Portfolio Standard (APS) incentivizes Massachusetts homeowners and businesses to install eligible alternative energy systems to lower greenhouse gas emissions and increase energy efficiency across the Commonwealth. The APS is a market based program, which requires that a portion of the electric load in Massachusetts be met via eligible technologies. Generation Unit owners receive an incentive by selling Alternative Energy Certificates (AECs), which they receive based on their energy generation, to entities in Massachusetts with a compliance obligation.

**Intermediate Solar Hot Water (SHW) systems are classified as any system with a collector surface area between 660 and 4,000 sq ft. Large SHW systems are classified as any system with a collector surface area greater than 4,000 sq ft.**

## Solar Hot Water in the Alternative Energy Portfolio Standard

SHW systems that meet all eligibility requirements determined by the Department of Energy Resources can become qualified to receive AECs based on the alternative energy their system generates.

### Performance Ratings

- All SHW systems qualified under the APS must have a performance certification issued by the Solar Rating and Certification Corporation, International Association of Plumbing and Mechanical Officials, or other performance certification approved by the Department.
- OG-100 and OG-300 are the most common performance standards for solar hot water systems.

### Multipliers for Intermediate and Large SHW Systems

- A “multiplier” increases the number of AECs generated and allows all renewable thermal technologies to have a meaningful incentive
- SHW systems used only for domestic hot water needs receive a multiplier of 3
- SHW systems used for domestic hot water, space conditioning or process loads receive a multiplier of 1

$$\text{AECs} = \text{Useful Thermal Energy (MWh equivalent)} \times \text{Multiplier}$$

### What are Alternative Energy Certificates (AEC)?

- AECs represent the environmental attributes of energy generated by a renewable or alternative Generation Unit
- Every AEC represents 3,412,000 British thermal units (or 1 MWh equivalent) of net useful thermal energy
- Typically through an aggregator, system owners can sell AECs generated by their system in the market to receive a monetary incentive
- AEC prices vary based on the market conditions. As of 2017, the estimated price of an AEC is \$20. Future price of AECs is subject to change. For a more in-depth assessment, please find our AEC calculator tool on the DOER APS website.



## How to Participate in the APS:

1. Have your system installed
2. Work with your installer and/or an aggregator to submit a Statement of Qualification to DOER\*
3. Once approved, the AECs will be available to be sold into the market. An aggregator typically will sell the AECs for you and will send you a check based on the current market price for AECs

\*Using an aggregator greatly simplifies the APS process and may help owners receive better prices for their AECs. Aggregators typically take a share of the AEC proceeds. Systems owners that opt to manage the APS process themselves should read the full regulations and guidelines.

### Metering for Intermediate and Large SHW Systems

**Intermediate Systems:** To avoid expensive metering costs, intermediate SHW systems are able to install simplified metering technology to calculate what the system's estimated useful thermal output was during each calendar quarter.

**Large Systems:** All large systems are required to directly meter the useful thermal energy generated. Systems require BTU meters to measure hot and cold water and electric meters to measure electric usage.

For more information, see the Guideline on Metering and Calculating the Useful Thermal Output for Renewable Thermal Generation Units – Part 2 (Metering for Intermediate and Large Generation Units) on the DOER website.

### What is an Independent Verifier?

An Independent Verifier or third party meter reader is required for all intermediate and large SHW Generation Units. The Independent Verifier must have no financial investment in the project. Their primary role in the operation of the system is to verify reported energy production to ensure that the system is not over or under producing. The Independent Verifier is also responsible for uploading all production information to NEPOOL GIS on a quarterly basis to mint the AECs.

### Key APS Program Details

- AECs are minted on a quarterly basis
- AECs can only be used for compliance in the year they were generated
- The NEPOOL GIS is an online platform where all AECs are minted and traded



Photo courtesy of the Massachusetts Maritime Academy

For more information on the process of installing and receiving certificates for renewable thermal generation units contact: [Thermal.DOER@State.ma.us](mailto:Thermal.DOER@State.ma.us) or visit

<https://www.mass.gov/guides/aps-renewable-thermal-statement-of-qualification-application>

