

Solar Hot Air 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 Air (SHA) systems are classified as any system with a collector surface area less than 10,000 sq ft. Large solar hot air systems are classified as any system with a collector surface area greater than 10,000 sq ft.

Solar Hot Air in the Alternative Energy Portfolio Standard

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

Multipliers for Intermediate and Large SHA Systems

- A “multiplier” increases the number of AECs generated and allows all renewable thermal technologies to have a meaningful incentive
- SHA systems receive a multiplier of 5

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

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.

Metering for Intermediate and Large SHA Systems

Intermediate Systems: To avoid expensive metering costs, intermediate SHA systems are able to install simplified metering technology, and, along with a certified look up table indexing flowrate provided by the system’s manufacturer, 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 an electric meter, an ambient air temperature sensor, a solar air temperature sensor, and an air flow meter.

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.

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.

What is an Independent Verifier?

An Independent Verifier or third party meter reader is required for all intermediate and large solar hot water Renewable Thermal Generation Units. The Independent Verifier must be an independent third party from the Generation Unit owner and have no financial investment in the project. Their primary role in the operation of the system is to verify all reported production to ensure that the system is not over or under producing in any way. The Independent Verifier is also responsible for uploading all production information to NEPOOL GIS on a quarterly basis, to ensure that all AECs are minted.

Key APS Program Details

- AECs are minted every quarter, two quarters after the generation occurs. AECs generated in Q1 (January—March) are minted in July.
- AECs can only be used for compliance in the year they were generated
- All certificate trading occurs in the online platform NEPOOL GIS

Key APS Program Terms

- **Generation Unit Owner:** The person who owns a qualified heating and cooling system and receives an APS incentive
- **Statement of Qualification:** The document which officially qualifies a system as an APS eligible Generation Unit
- **Aggregator:** A person or company who handles the process of qualifying Generation Units and manages the buying/selling of certificates on behalf of Generation Unit Owners
- **Independent Verifier:** A person or company who reports and verifies production for the Generation Unit
- **Production Tracking System (PTS):** An application hosted by the Massachusetts Clean Energy Center that is used to track renewable energy across the Commonwealth
- **NEPOOL GIS:** An online application where AECs are minted and traded

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

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

