

Small Air Source Heat Pumps in the Massachusetts Alternative Portfolio Standard

The Alternative Energy Portfolio Standard (APS) provides an incentive to Massachusetts homeowners and businesses to install eligible alternative energy systems that lower greenhouse gas emissions and increase energy efficiency across the Commonwealth. The APS is a market based program that requires 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 accrue based on their energy generation, to entities in Massachusetts with a compliance obligation.

Small (residential scale) Air Source Heat Pumps (ASHP) are classified as any system with an output capacity less than 0.134 MMBtu/hr

ASHPs in the Alternative Energy Portfolio Standard

ASHPs 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. AECs are only generated when the system is in heating mode, however there is no restriction on the use of the system for cooling. Any ASHP seeking qualification under the APS must meet a minimum of 90% of the annual heat load of the building and be able to distribute that heat throughout the building.

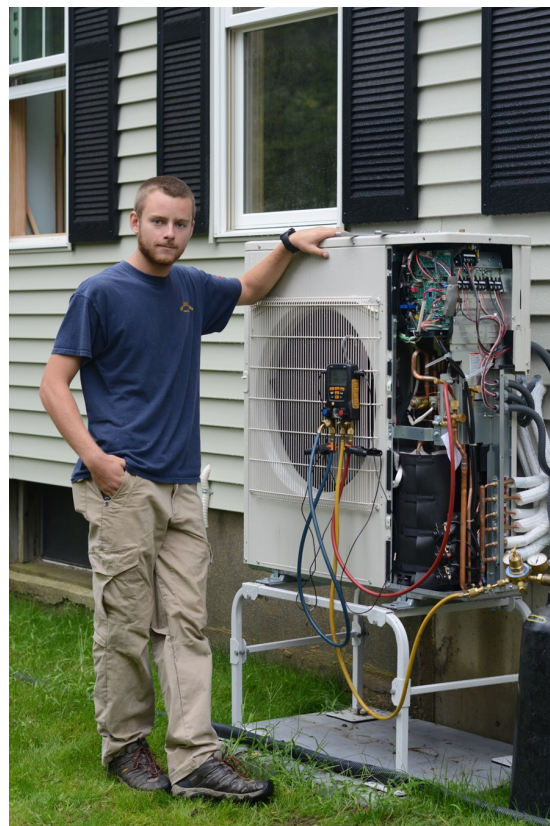
What are Alternative Energy Certificates (AEC)?

- 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

Key Equipment Eligibility Criteria

ASHPs must meet DOER's eligibility criteria. A comprehensive list of eligibility criteria can be found in the APS regulations and guidelines. Key criteria include that ASHPs must:

- Be ENERGY STAR™ certified
- Meet the Cold Climate Air Source Heat Pump Specification Version 2.0 published by Northeast Energy Efficiency Partnerships effective January 1, 2017 or any version thereafter
- Be part of an Air-Conditioning, Heating, & Refrigeration Institute matched system
- Have a variable speed compressor
- Have a Coefficient Of Performance (COP) greater than or equal to 1.9 at 5 degree Fahrenheit
- Have a COP greater than or equal to 2.5 at 17 degree Fahrenheit



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.

Example of the APS Incentive for a Small ASHP

Area of Conditioned Space (sq ft)	Number of AECs per Year (including 3x multiplier)	Total AECs Generated (10 year value)
≤1,500	9	90
2,000	12	120
2,500	15	150
3,000	18	180
3,500	21	210
4,000	24	240

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's APS website.

Pre-Minting of AECs for Small ASHP

- While most systems qualified under the APS receive AECs on a quarterly basis, small ASHP qualify for pre-minting, which means each system owner will receive 10 years worth of AECs in the first quarter they are qualified
- The number of pre-minted AECs given to qualified systems is calculated using a formula, rather than expensive meters, and is based on the square footage of the conditioned space
- The pre-minting of AECs allows the system owner to monetize all of the AECs upfront, rather than quarterly over the 10 years

Multipliers for Small ASHP

- A "multiplier" increases the number of AECs generated and allows all renewable thermal technologies to have a meaningful incentive
- ASHPs that meet 90% of the building's annual heat load receive a base multiplier of 2. ASHPs that meet 100% of the building's annual heat load receive a base multiplier of 3
- ASHPs in a building that meet the program's energy efficiency requirements will receive an additional multiplier of 2 that is added to the base multiplier

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>

