

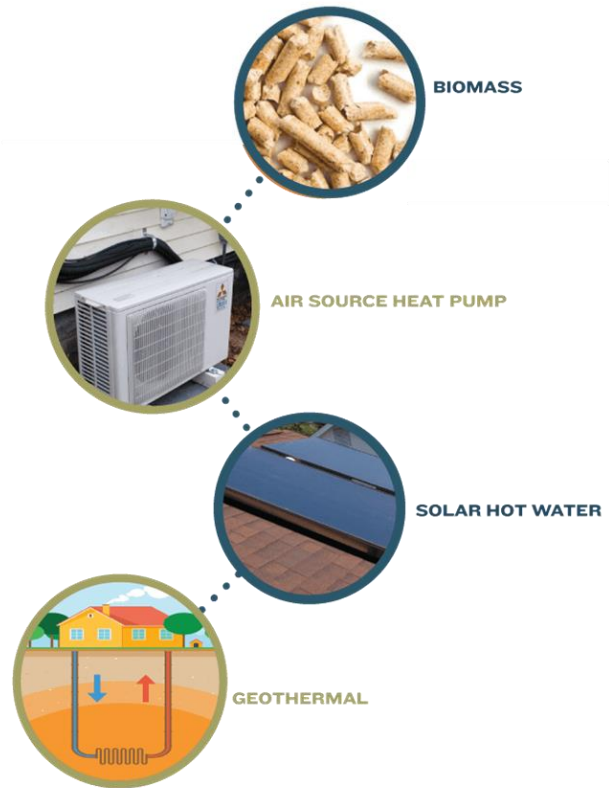


## ENERGY CREDIT AGGREGATION GUIDE

This is a guide to HCG as your **Alternative Energy Certificate (AEC)** Aggregator. We are excited to be working with you and keeping your energy dollars in the local economy. If you have recently installed a new solar thermal, biomass, biofuel, ground source heat pump, or air source heat pump system then you have come to the right place.

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## What are Alternative Energy Certificates (AECs)

- AECs are the positive environmental attributes associated with thermal energy production
- AECs are the incentives for technologies increasing energy efficiency and reducing the need for conventional fossil fuel-based power generation.
- Every AEC represents 3,412,000 British thermal units (or 1 MWh equivalent) of net useful thermal energy
- AECs behave like stock certificates and are sold on a market administered by MA Department of Energy Resources (DOER). Bids are subject to supply and demand. Certificate prices are based on the market conditions and may fluctuate over time.

### A common question is “Who purchases AECs?”

The answer is: Investor owned utilities need AECs to meet Portfolio standards (like the RPS or APS). It is an alternative to investing in developing their own renewable projects to otherwise invest in the development of the other renewable projects.

## Aggregating your AECs

The HCG Energy Certificate aggregation currently represents thousands of homeowners, small business owners, and municipal building managers across Massachusetts and we are growing every day.

We aggregate our members’ certificates and sell them to competitive suppliers and distribution companies in need of credits to attain compliance with the Massachusetts Renewable Portfolio Standard (RPS) and Alternative Portfolio Standard (APS) markets. Apart from a small broker fee, the money is returned directly to you.

## Join your local energy aggregation

- Since 2011 we have grown to manage a portfolio of \$34.7 million worth of REC’s
- We monitor the REC marketplace to ensure that you get top dollar
- We sell your energy credits without the hassle
- We monitor the AEC marketplace to ensure that you get top dollar
- We maximize your investment with a low brokerage fee



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“I am delighted to have HCG's help in selling my Alternative Energy Credits. The funds the credits will generate, will help to pay for photovoltaics to fuel the electric load of my new geothermal system. When I am done, I will only use energy from my rooftop or my garden. I am very happy with this arrangement.”

–Susan Butler, Cambridge Geothermal Customer

## Eligibility Criteria

The facility must:

- Have an operation date January 15th 2015 or later
- Generate useful thermal energy using the below technologies using eligible systems
- Deliver a useful thermal load to a facility located in Massachusetts
- Heating systems must heat 90% or greater of the home/space

Technology	Summary	Sizing
Eligible Biomass Fuel	An advanced wood heating boiler or furnace utilizes eligible biomass fuel to provide heat. These systems are highly efficient, with low emissions, and support the use of local fuel sources.	Intermediate: Output Capacity < 1.0 MMBtu  Large: Output Capacity > 1.0 MMBtu
Solar PV	HCG also aggregates for solar PV systems that generate Solar Renewable Energy Certificates (SREC)	For more information, visit our website <a href="http://www.hcg-ma.org/energy-credits">www.hcg-ma.org/energy-credits</a>
Air Source Heat Pumps	An air source heat pump Generation Unit uses compression and evaporation to transfer thermal energy from the ambient out- door environment to a thermal load as Useful Thermal Energy.	Small: Output Capacity < 0.134 MMBtu Intermediate: Output Capacity 0.134—1.0 MMBtu Large: Output Capacity > 1.0 MMBtu
Solar Hot Water	Flat plates or evacuated tubes absorb sun-light and transform it into heat which is then added to the water, and this influx of heat warms it.	Small: Collector surface area < 660 sq ft Intermediate: Collector surface area 660—4,000 sq ft Large: Collector Surface Area > 4,000 sq ft
Ground Source Heat Pumps	A ground source heat pump Generation Unit uses compression and evaporation to transfer thermal energy from the ambient underground or water environment to a thermal load as Useful Thermal Energy.	Small: Output Capacity < 0.134 MMBtu Intermediate: Output Capacity 0.134—1.0 MMBtu Large: Output Capacity > 1.0 MMBtu

## AEC Issuance Process

The MassCEC tracks each technology and its estimated or metered data reported by the system authorized representative/reporter. Using technology specific formulas to calculate estimated or actual BTU generation, MassCEC reports the whole AEC to NEPOOL GIS. NEPOOL GIS creates 1 AEC. Your AECs are deposited into HCG’s NEPOOL GIS Aggregation for our reporting and thus the selling process of the AECs begins.

Depending on the size and type of technology, there are different AEC Issuance types:

## **Pre-minting**

Pre-minting of AECs allows certain generators to receive 10 years of AECs upfront in the first quarter of operation. HCG recommends this for all small heat pumps and solar hot water and air systems.

## **Forward Minting**

Forward minting of AECs allows generators to receive a pre-determined number of AECs each quarter over a period of 10 years. Small heat pumps and solar hot water and air systems may choose to forward mint AECs.

\*Both options allow generators to receive AECs without directly metering their thermal output. If the APS market is more than 25% undersupplied, Preminting is the default option available. If the APS market is less than 25% undersupplied, Forward minting is automatically triggered for new generators.

## **Quarterly Minting**

Biomass, biogas, and liquid biofuel generators may not pre-mint or forward mint their AECs. These generators must report fuel each quarter to MassCEC. Based upon fuel receipts, then the AECs will be minted after all the certifications of the fuel receipts are completed by the fuel suppliers. There is a 2 quarter delay from fuel consumption to customer payment. Example: Eligible Pellet purchased and consumed in January to March 2018 will have AECs minted in July 2018 and Customer Payment is in August 2018.

All intermediate and large Generation Units (except intermediate biomass systems less than 0.134 MMBtu/hr capacity) also only participate in quarterly minting are required to contract with an Independent Verifier (Third Party Meter Reader), also referred to as an IV. The duty of the IV is to access/read the output of each meter of the unit, assure itself that the reading is reasonable, and accurately report the generation of the unit to the NEPOOL GIS (GIS) on a quarterly basis.

## **How much are AECs worth?**

Each year the Investor owned utilities must show that they have purchased a sufficient amount of Renewable Energy Certificates (RECs), Alternative Energy Certificates (AECs), Solar Renewable Energy Certificates (SRECs), and Solar Renewable Energy Certificate IIs (SREC IIs) to show they are investing in renewable technologies. These are variable and related to market pricing.

The Alternative Compliance Payment (ACP) Rates change each year and it the "penalty" that investor owned utilities must pay if they do not purchase a sufficient amount of certificates.

For more information: <https://www.mass.gov/service-details/compliance-information-for-retail-electric-suppliers>

## Quarterly Sales

There are four trading periods each year in which AECs can be sold in the open market:

Quarter	New Customers Application Deadline	Minting of AECs	Payment sent out
Q1	April 15th	July 15th	2 <sup>nd</sup> – 3 <sup>rd</sup> week of August
Q2	July 15th	October 15th	2 <sup>nd</sup> – 3 <sup>rd</sup> week of November
Q3	October 15th	January 15th	2 <sup>nd</sup> – 3 <sup>rd</sup> week of February
Q4	January 15th	April 15th	2 <sup>nd</sup> – 3 <sup>rd</sup> week of May

Quarterly sales take place in an open market environment so the rate is influenced by supply and demand in any given quarter. The **demand** comes from the DOER requiring a certain percentage of their total load served by the utilities to meet their compliance obligations. The **supply** comes from facilities, like yours, being installed and generating AECs. If the supply is low and demand is high, prices for AECs go up. If supply is high and demand is low, the prices for AECs go down. The resulting price may be higher or lower than the annual auction rate. However, if you choose to sell quarterly, you may specify the lowest price that you are willing to accept per AEC and we will not sell unless we can meet that price.

There is a three month delay between when credits are generated and when they can be sold. You are allowed to hold credits for future trading periods up to a point. The rule is that credits can be held until the time of the auction that they will be eligible for.

Example: If you generated credits from your production in Q1 of 2018, these credits will become eligible for sale in Q3 of 2018. Their eligibility will continue through Q4 of 2018 and Q1 and Q2 of 2019.

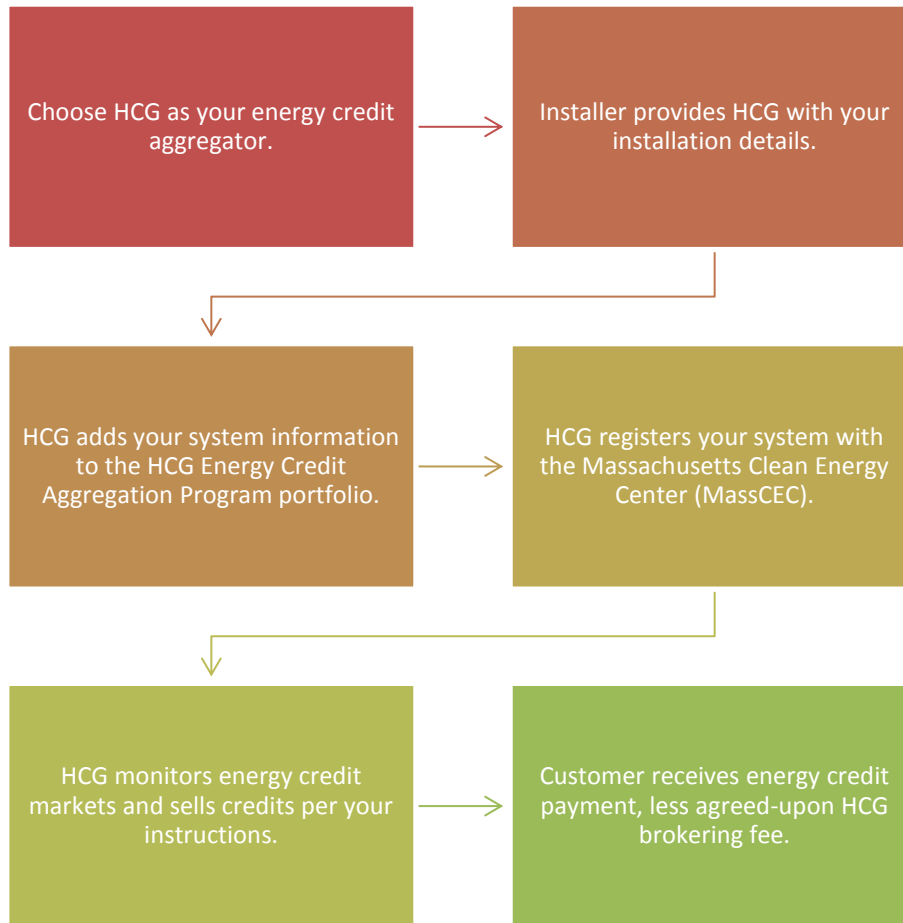


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“At all times, HCG has been a dependable, hardworking, and conscientious resource for us. They have always followed through with any questions or concerns that we or our customers have had. We find them to be organized, reliable, and a good communicator.”

NorthEast Solar Design Associates, LLC

## The AEC Registration Process



## Application deadlines

Quarter	New Customers Application Deadline	Minting of AECs	Payment sent out
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## Multipliers

Below are the certificate multipliers for non-emitting renewable thermal technologies. The statute allows for DOER to establish certificate multipliers for “non-emitting renewable thermal technologies,” which results in more AECs being earned for the same 3,412,000 British thermal units

of net useful thermal energy. DOER has established the following multipliers for non-emitting renewable thermal technologies:

Technology	APS Renewable Thermal Generation Unit multiplier		
	Small	Intermediate	Large
Active solar hot water systems used for domestic hot water	3	3	3
Active solar hot water systems used for domestic hot water, space conditioning, or process loads	1	1	1
Active solar hot air systems	-	5	5
Ground source heat pumps	5	5	5
Air source heat pump supplying less than 100% of building heating load	2	-	-
Air source heat pump – all other	3	3	3

In addition to the above multipliers, any air source or ground source heat pumps are eligible for one additional multiplier of 2 (added to their base multiplier above) if they :

- Home Energy Rating System (HERS) Index rating of 50 or less
- “Zero Energy” building by September 15, 2015
- PHIUS+ Certified by the Passive House Institute US (PHIUS)
- the building is registered as a Certified Passive House Building or an EnerPHit Retrofit by the International Passive House Association (iPHA), as documented by a iPHA recognized Certified Passive House Designer.

Multiplier values are applied to the Useful Thermal Energy generated by the system.

$$AECs = \text{Useful Thermal Energy (MWH)} * (\text{base multiplier} + \text{additional multiplier})$$

## Payments

HCG will Direct Deposit payments into your bank account, we no longer offer the use of paper checks. You will receive payment after your sale of credits has cleared, approximately 4-6 weeks after the close of the previous quarter.

In general, expect a six to nine month period between application submission and payment on all Forward minted heating systems or the first quarter for biomass systems.

**Questions:** call our Energy Credit team at 413-584-1300 x9 or email: [energycredits@hcg-ma.org](mailto:energycredits@hcg-ma.org)