225 CMR 16.00: **ALTERNATIVE ENERGY PORTFOLIO STANDARD (APS)**

Section

16.01: Authority

225 CMR 16.00 is promulgated pursuant to M.G.L. c. 25A, §§ 6 and 11F½.

16.02: Definitions

Aggregation. A group of one or more Generation Units that receives a single Statement of Qualification from the Department under criteria and procedures set forth in 225 CMR 16.~~04~~05(3).

Alternative Compliance Payment (ACP). A payment of a certain dollar amount per MWh, resulting in the issuance of Alternative Compliance Credits, which a Retail Electricity Supplier may submit to the Department in *lieu* of providing APS Alternative Generation Attributes required under 225 CMR 16.~~06~~07.

Alternative Compliance Credit. A credit obtained by a Retail Electricity Supplier upon making an Alternative Compliance Payment. Such credit may be used to document compliance with 225 CMR 16.~~06~~07. One unit of credit shall be equivalent to the APS Alternative Generation Attribute associated with one MWh of electrical energy output, or with the equivalent of such output as provided in 225 CMR 16.~~04~~05(1)(a)2.c. and in 225 CMR 16.~~04~~05(1)(a)3., from an APS Alternative Generation Unit.

APS Alternative Generation. The ~~electrical~~ energy output of an APS Alternative Generation Unit, or the equivalent of such output as provided in 225 CMR 16.~~04~~05(1)(a)2.~~c.~~b., 225 CMR 16.05(1)(a)3.b., and in 225 CMR 16.~~04~~05(1)(a)~~3.,~~6.b. or that portion of the ~~electrical~~ energy output of an Alternative Generation Unit that qualifies under a Co-firing Waiver pursuant to 225 CMR 16.~~04(3~~05(2) or under any other applicable provision of 225 CMR 16.00.

APS Alternative Generation Attribute (Attribute). The Generation Attribute of the ~~electrical energy output~~energy output, or the equivalent of such output as provided in 225 CMR 16.05(1)(a)2.b., 225 CMR 16.05(1)(a)3., and in 225 CMR 16.05(1)(a)6.b. of a specific APS Alternative Generation Unit that derives from the Generation Unit's production of APS Alternative Generation.

APS Alternative Generation Unit. A Generation Unit or Aggregation that has received a Statement of Qualification from the Department.

APS Ineligible Energy Source. Any of the following fuels and energy sources, whose use is not eligible for APS Alternative Energy Attributes ~~except under the circumstances specified in 225 CMR 16.00: coal, except when used in Gasification; petroleum-derived fuels and materials, except for petroleum coke when used in Gasification; natural gas, except when used in Gasification or Combined Heat and Power; and nuclear power.~~:

(a) coal;
(b) petroleum coke;
(c) oil, other Petroleum Products as defined in M.G.L. C. 25A, § 3, and other petroleum-derived materials;
(d) natural gas, except when used in Combined Heat and Power or fuel cell technology;
(e) Construction and Demolition Waste as defined in 310 CMR 19.006: *Definitions* including, but not limited to, chemically-treated wood; and
(f) nuclear power.

APS Renewable Thermal Generation Unit. An APS Alternative Generation Unit or Aggregation that uses one of the technologies provided in 225 CMR 16.05(1)(a)(6) a. to generate Useful Thermal Energy and has received a Statement of Qualification from the Department.

Business Day. A business day shall mean Monday through Friday, exclusive of state and federal legal holidays.

~~Capture and Permanent Sequestration. [RESERVED]~~

Certificates Obligation. A term defined in the NEPOOL GIS Operating Rules at Rule 4.1(b).

Clean Wood. Means Clean Wood as defined in 310 CMR 19.006: *Definitions.*

Combined Heat and Power (CHP). The generation of electrical and Useful Thermal Energy in a single integrated system.

Commercial Operation Date. The date that a Generation Unit first produces electrical energy for sale within the ISO-NE Control Area. In the case of a Generation Unit that is connected to the End-use Customer's side of the electric meter or produces Off-grid Generation, the date that such Generation Unit first produces electrical energy. In the case of an APS Renewable Thermal Generation Unit, the Commercial Operation Date is the date that such APS Renewable Thermal Generation Unit first produces Useful Thermal Energy. ~~In the case of a Generation Unit that utilizes gas from a Gasification facility which meets the eligibility~~

~~criteria in 225 CMR 16.04(1)(a)1., or a Paper-derived Fuel which meets the eligibility criteria in 225 CMR 16.04(1)(a)4., the date when the Generation Unit first utilizes such eligible gas or Paper-derived Fuels.~~

Compliance Filing. A document filed annually by a Retail Electricity Supplier with the Department documenting compliance with 225 CMR 16.~~06~~07, consistent with the format set forth in the Guidelines and submitted no later than the first day of July, or the first Business Day thereafter, of the subsequent Compliance Year.

Compliance Year. A calendar year beginning January 1st and ending December 31st, for which a Retail Electricity Supplier must demonstrate that it has met the requirements of 225 CMR 16.~~06~~07 and 16.~~07~~08.

Control Area. A geographic region in which a common generation control system is used to maintain scheduled interchange of electrical energy within and without the region.

DCR. The Massachusetts Department of Conservation and Recreation (DCR) established by M.G.L. c. 21, § 1.

Dedicated Energy Crops. Crops grown for the purpose of producing fuel, provided that such crops are not grown on land that sequestered significant amounts of carbon, such as a forest, and provided that such land does not have the economic potential to support production of any other agricultural crop grown for human consumption ~~as food~~.

Department. The Massachusetts Department of Energy Resources (DOER), established by M.G.L. c. 25A~~,~~ §1.

Efficient Steam Technology. [RESERVED]

Eligible Biogas Fuel. A gaseous fuel that is produced by the contemporaneous bacterial decomposition or thermal gasification of Eligible Biomass Fuel. Eligible Biogas Fuel does not include natural gas but does include renewable natural gas, which is Eligible Biogas Fuel upgraded to a quality similar to natural gas.

Eligible Biomass Fuel. Fuel sources consisting of the following:

(a) Eligible Biomass Woody Fuel;
(b) Dedicated Energy Crops;
(c) Manufactured Biomass Fuel;
(d) Eligible Biogas Fuel;
(e) by-products or waste from animals or agricultural crops;
(f) food or vegetative material;
(g) algae;
(h) organic refuse derived fuel; and
(i) ~~Neat~~ Eligible Liquid Biofuel.

~~Eligible Biomass Fuel shall not be from fuel sources consisting of Construction and Demolition Waste, as defined in 310 CMR 19.006: *Definitions*.~~

Eligible Biomass Woody Fuel. Woody fuels that are derived from the following sources, consistent with the requirements of 225 CMR 16.05(4)(~~d~~g):

(a) Forest-Derived Residues (Residues):

1. Tops, crooks and other portions of trees produced as a byproduct during the normal course of harvesting material, such as timber, pulpwood or cordwood in the implementation of a silvicultural prescription as administered by a licensed forester as prescribed in the Department's *Guideline on Biomass, Biogas, and Biofuels for Eligible Renewable Thermal Generation Units*.
2. Other woody vegetation that interferes with regeneration or the natural growth of the forest, limited to locally invasive native species and non-native invasive woody vegetation.

(b) Forest-Derived Thinnings (Thinnings):

1. Unacceptable growing stock which is defined as trees considered structurally weak or have low vigor and do not have the potential to eventually yield an 8 ~~12~~ foot saw log or survive for at least the next 10 years.
2. Trees removed during thinning operations, the purpose of which is to reduce stand density and enhance diameter growth and volume of acceptable growing stock within the residual stand.

(c) Forest Salvage:

1. Damaged, dying, or dead trees removed due to injurious agents, such as wind or ice storms or the spread of invasive epidemic forest pathogens, insects and diseases or other epidemic biological risks to the forest, but not removed due to competition. Such eligible trees may be removed without limitation for biomass fuel, only if a major threat to forest health or risk to private or public resources, and if the ~~USDA~~ United States Department of Agriculture Animal and Plant Health ~~and Plant~~ Inspection Service ~~(APHIS)~~, the ~~USDA~~ United States Department of Agriculture Forest Service, or appropriate federal or state governmental agency has issued a declaration, rule, or order declaring a major threat to forest health or risk to private or public resources.
2. Trees removed to reduce fire hazard within f~~F~~ire-adapted f~~F~~orest e~~E~~cosystems, as certified by a letter to the Department from the state agency responsible for forestry in consultation with the appropriate environmental state agencies.

(d) Non-Forest-Derived Residues:

~~Primary f~~Forest products industry: Residues derived from wood products manufacturing consisting of Clean Wood. ~~Lumber mill residues or lumber processing residues consisting of the slabs, shavings, trimmings, sawdust,~~

~~bark, end pieces of wood, and log cores that result from the various processing operations occurring in sawmills, pulp mills, and veneer and plywood plants.~~

1. ~~Secondary forest products industry: Wood waste produced as a byproduct of the production of finished wood products, including but not limited to clean residues from woodworking shops, furniture factories, and truss and pallet manufacturing.~~

~~Land use change – non-agricultural: Trees cut or otherwise removed in the process of converting forest land to non-forest and non-agricultural uses provided that such development has already received all applicable state and local permits for the development.~~

2. Land use change – agricultural: Trees cut or otherwise removed in the process of converting forest land to agricultural usage, either for new or restored farm land.
3. Wood waste: ~~Non-treated pallets; p~~Pruned branches, stumps, and whole trees removed during the normal course of maintenance of public or private roads, highways, driveways, utility lines, rights of way, and parks.

Eligible Liquid Biofuel. A liquid fuel that is derived from organic waste feedstocks~~ that originate in a jurisdiction with an organic waste disposal ban in place equivalent or similar to the restrictions placed on Commercial Organic Materials in 310 CMR 19.017(3): *Table*, as determined by the Department in consultation with MassDEP.~~ Organic waste feedstock shall include, but not be limited to, waste vegetable oils, waste animal fats, or grease trap waste. Eligible Liquid Biofuel shall not include petroleum-based waste or Hazardous Waste as defined in 310 CMR 40.0006: *Terminology, Definitions, and Acronyms*, unless otherwise determined by the MassDEP.

End-use Customer. A person or entity in Massachusetts that purchases electrical energy at retail from a Retail Electricity Supplier, except that a Generation Unit taking station service at wholesale from ISO-NE or self-supplying from its owner's other generating stations, shall not be considered an End-use Customer.

Flywheel. A device used to store rotational kinetic energy.

Fuel Cell Generation Unit. A device that uses Hydrogen as a fuel in an electro-chemical reaction to produce electricity, thermal energy, and water.

~~Gasification. A process in which a fuel is converted to a gas of sufficient quality that it is capable of use in a combined cycle natural gas Generation Unit.~~

Generation Attribute. A non-price characteristic of the energy output of a Generation Unit including, but not limited to, the Unit's fuel type, emissions, vintage and APS eligibility.

Generation Unit. A facility that converts a fuel or an energy resource into electrical energy~~.~~, ~~Or~~ thermal energy, or both.

GIS Certificate. An electronic record produced by the NEPOOL GIS that identifies

Generation Attributes of each MWh accounted for in the NEPOOL GIS.

Guidelines. A set of clarifications, interpretations, and procedures, including forms, developed by the Department to assist in compliance with the requirements of 225 CMR 16.00. The Department may issue new or revised Guidelines, after a public comment period. Each Guideline shall be effective on its date of issuance or on such date as specified, except as otherwise provided in 225 CMR 16.00.

International Association of Plumbing and Mechanical Officials (IAPMO). The International Association of Plumbing and Mechanical Officials is a non-profit, accredited standards developer and certification body which rates and certifies solar heating collectors and systems.

Incremental Electrical Energy. Electrical energy generated by a CHP Unit that is either greater than (expressed as a positive amount) or less than (expressed as a negative amount) the electrical energy generated by the CHP Unit prior to the addition of new electric generation nameplate capacity, Useful Thermal Energy, or Incremental Useful Thermal Energy.

Incremental Fuel. The amount of additional fuel used by a CHP Generation Unit which is attributable to the production of Incremental Useful Thermal Energy or Incremental Electrical Energy.

Incremental Useful Thermal Energy. Useful Thermal Energy produced by a CHP Unit that is distinct in its final distribution, beneficial measure, and metering from Useful Thermal Energy previously produced by the CHP Unit, but only to the extent that the Incremental Useful Thermal Energy does not reduce the Useful Thermal Energy previously produced.

ISO-NE. ISO New England Inc., the independent system operator for New England, the regional transmission organization for most of New England, which is authorized by the Federal Energy Regulatory Commission (FERC) to exercise for the New England Control Area the functions required pursuant to the FERC's Order No. 2000.

ISO-NE Settlement Market System. The ISO-NE's electronic database system into which all real-time load and generation data are entered and from which such data are provided to the NEPOOL GIS.

Manufactured Biomass Fuel. A biomass fuel that is prepared, other than by means of fuel drying, through a fuel processing facility that is separate from a Generation Unit and that utilizes Eligible Biomass Woody Fuel for production. Examples include, but are not limited to, the mechanical production of wood pellets or bio-dust, and the refinement of bio-oil through pyrolysis.

Massachusetts Clean Energy Technology Center (MassCEC). The center established by M.G.L. c. 23J, § 2.

MassDEP. The Massachusetts Department of Environmental Protection established by

M.G.L. c. 21A, § 7.

Megawatt-hour (MWh). A unit of electrical energy or work equivalent to one million watts of power operating for one hour~~.~~, or~~,~~ for the purpose of thermal energy, a unit of energy equal to 3,412 thousand British T~~t~~hermal U~~u~~nits (Btu).

~~Neat Eligible Liquid Biofuel. A liquid fuel consisting of 100% Eligible Liquid Biofuel.~~

NEPOOL GIS. The NEPOOL Generation Information System, which includes a generation information database and certificate system, operated by the New England Power Pool (NEPOOL), its designee or successor entity, that accounts for Generation Attributes of electrical energy consumed within, imported into, or exported from the ISO-NE Control Area.

North American Electric Reliability Council (NERC) Tag. An identification of an electrical energy interchange transaction assigned in accordance with rules set forth by the North American Electric Reliability Council.

Off-grid Generation. The electrical energy produced by a Generation Unit that is not connected to a utility transmission or distribution system.

Operator. Any person or entity who has charge or control of a Generation Unit subject to 225 CMR 16.00, including without limitation a duly authorized agent or lessee of the Owner, or a duly authorized independent contractor.

Owner. Any person or entity who, alone or in conjunction with others, has legal ownership, a leasehold interest, or effective control over the real property or property interest upon which a Generation Unit is located, or the airspace above said real property, including without limitation a duly authorized agent of the Owner. For the purposes of 225 CMR 16.~~01~~02, Owner does not mean a person or entity holding legal title or security interest solely for the purpose of providing financing.

~~Paper-derived Fuel. Alternative, paper-derived fuel source approved by the MassDEP through a beneficial use determination under 310 CMR 19.060, with a composition of not more than 15% by energy content of fossil fuel derived sources.~~

Retail Electricity Product. An electrical energy offering that is distinguished by its Generation Attributes and that is offered for sale by a Retail Electricity Supplier to End-use Customers.

Retail Electricity Supplier. A person or entity that sells electrical energy to End-use Customers in Massachusetts, including but not limited to electric utility distribution companies supplying basic service or any successor service to End-use Customers. A Municipal Lighting Plant shall be considered a Retail Electricity Supplier; however, it shall be exempt from the obligations of a Retail Electricity Supplier under 225 CMR 16.00 so long as and insofar as it is exempt from the requirements to allow competitive choice of generation supply pursuant to M.G.L. c. 164, § 47A.

Solar Rating and Certification Corporation (SRCC). The Solar Rating and Certification Corporation is a non-profit organization with the primary goal to develop and implement national rating standards and certification programs for solar energy equipment.

Statement of Qualification (SQ). A written document from the Department that qualifies a Generation Unit or Aggregation as an APS Alternative Generation Unit, or that qualifies a portion of the ~~electrical~~ energy output of a Generation Unit or Aggregation as APS Alternative Generation.

Sustainable Forestry Management. Practicing a land stewardship ethic that integrates the reforestation, managing, growing, nurturing, and harvesting of trees for useful products with the conservation of soil, air and water quality, wildlife and fish habitat, and aesthetics.

Thermal Waste-to-Energy Generation Unit. A Generation Unit that utilizes conventional municipal solid waste plant technology in commercial use to generate Useful Thermal Energy and was in operation as of January 1, 2016.

Useful Thermal Energy. Energy ~~(a)~~ in the form of direct heat, steam, hot water, hot air, or other thermal form that is used in the production and beneficial measures of ~~for~~ heating, cooling, humidity control, process use, or other valid thermal end use energy requirements~~, and (b)~~ for which fuel or electricity would otherwise be consumed.

Valid Air Permit. Within the United States, a current and effective authorization, license, certificate, or like approval to construct and/or operate a source of air pollution, issued or required by the regulatory agency designated in the applicable State Implementation Plan to issue permits under the Clean Air Act, 42 U.S.C. §§ 7401, *et seq*. In jurisdictions outside of the United States, it shall be a document demonstrating an equivalent authorization.

16.~~02~~03: Administration

225 CMR 16.00 shall be administered by the Department.

16.~~03~~04: Applicability

225 CMR 16.00 applies to Retail Electricity Suppliers and to the Owners or Operators of APS Alternative Generation Units.

16.~~04~~05: Eligibility Criteria for APS Alternative Generation Units

(1) Eligibility Criteria. A Generation Unit may qualify as an APS Alternative Generation Unit subject to the limitations in 225 CMR 16.~~04.~~05.

(a) Technologies. The Generation Unit shall use one or more of the technologies listed in 225 CMR 16.~~04~~05(1)(a)1. through ~~5.~~ 6.

1. Gasification. This technology is no longer eligible because it was eliminated

pursuant to Section two of Chapter 251 of the Acts of 2014, now codified at M.G.L. c. 25A, § 11F½.~~A Generation Unit that uses fuel produced at a Gasification facility from feedstock that does not include any APS Ineligible Energy Source may qualify as an APS Alternative Generation Unit, subject to the limitations in 225 CMR 16.04(1)(a)1.~~

~~a. The Generation Unit's Owner or Operator shall document to the satisfaction of the Department, in consultation with MassDEP, that the Gasification facility has established and maintains a Capture and Permanent Sequestration program of carbon dioxide, and submits, not less than annually, compliance reports of such program to the Department and MassDEP.~~

~~b. The total overall fuel conversion efficiency from feedstock to final combustible fuel shall not be less than 70%, as determined in a manner to be specified by the Department.~~

~~c. The Generation Unit must have a Valid Air Permit, and, if located outside of Massachusetts, the Generation Unit must demonstrate to the satisfaction of the Department that the emission rates for the Generation Unit are consistent with rates prescribed by the MassDEP for comparably fueled Generation Units.~~

2. ~~–~~Combined Heat and Power. A Generation Unit that is operated to produce Combined Heat and Power may qualify as an APS Alternative Generation Unit, subject to the limitations in 225 CMR 16.~~04~~05(1)(a)2.

a. CHP Metering and Reporting Requirements. A CHP Unit shall provide for the metering of electrical energy generated, Useful Thermal Energy produced, and fuel consumed; for calculating the net quantity of MWh for which Alternative Energy Attributes are qualified, and for reporting to the NEPOOL GIS of that net qualified MWh quantity in a manner prescribed in 225 CMR 16.~~04~~05(1)(c), for each quarter of the Compliance Year. Monitoring, reporting, and calculating of electrical energy and Useful Thermal Energy produced in that quarter shall be expressed in MWh, and the total of all fuel and any other energy consumed in that quarter is calculated using the energy content of the fuel based on higher heating value.

b. ~~b. –~~Determination of APS Alternative Energy Attributes. The Generation Unit shall be provided APS Alternative Energy Attributes as specified in 225 CMR 16.~~04~~05(1)(a)2.b.

i. A CHP Unit which produced neither electrical nor Useful Thermal Energy before January 1, 2008, shall be provided APS Alternative Energy Attributes equal to the result, if positive, of the following calculation: take the sum of (1) the electrical energy generated divided by the overall efficiency of electrical energy delivered to the end-use from the electrical grid (which efficiency is equal for this purpose to 0.33); and (2) the Useful Thermal Energy divided by the overall efficiency of thermal energy delivered to the end-use from a standalone heating unit (which efficiency is equal for this purpose to 0.80); and subtract from this sum the total of all fuel and any other energy consumed by the CHP Unit in that quarter expressed in MWh and

calculated using the energy content of the fuel based on its higher heating value.

ii. A CHP Unit which produced either or both electrical and Useful Thermal Energy before January 1, 2008, and added either or both Incremental Useful Thermal Energy or Incremental Electrical Energy after such date, shall be provided APS Alternative Energy Attributes equal to the result, if positive, of the following calculation: take the sum of (1) the Incremental Electrical Energy generated divided by the overall efficiency of electrical energy delivered to the end-use from the electrical grid (which efficiency is equal for this purpose to 0.33); and (2) the Incremental Useful Thermal Energy divided by the overall efficiency of thermal energy delivered to the end-use from a standalone heating unit (which efficiency is equal for this purpose to 0.80); and subtract from this sum the total of all Incremental Fuel and any other incremental energy consumed by the CHP Unit in that quarter expressed in MWh and calculated using the energy content of the fuel based on its higher heating value.

c. Energy Deliverability Requirement. The CHP Unit shall deliver Useful Thermal Energy to an end-use load located in the Commonwealth of Massachusetts.

~~d. Eligibility of RPS Class I Renewable Generation Units, and RPS Class II Renewable Generation Units. , and APS Renewable Thermal Generation Units. A CHP Unit that is qualified as an RPS Class I Renewable Generation Unit under 225 CMR 14.00 or as an RPS Class II Renewable Generation Unit under 225 CMR 15.00 may also be qualified as an APS Alternative Generation Unit if it meets all appropriate criteria in 225 CMR 16.04(1)(a)2.a. through c.05(1)(a)2.a.-c. A CHP Generation Unit that meets all criteria in 225 CMR 16.05(1)(a)2.a.-c. and also meets the criteria of an APS Renewable Thermal Generation Unit under 225 CMR 16.05(1)(a)6., shall be qualified under 225 CMR 16.00 as an APS Renewable Thermal Generation Unit.~~

3. Flywheel Storage Unit. A Flywheel Storage Unit that stores and discharges electrical energy may qualify as an APS Alternative Generation Unit, subject to the limitations in 225 CMR 16.~~04~~05(1)(a)3.

a. The Flywheel Storage Unit must participate in the ISO-NE regulation market.

b. ~~–~~The portion of the electrical energy output of a Flywheel Storage Unit that may qualify for APS Alternative Generation shall be calculated each quarter of the Compliance Year as 65% of the electrical energy discharged from the Flywheel Storage Unit during the quarter.

c. The electrical energy output, the calculation made to derive the net quantity of MWh for which Alternative Energy Attributes are qualified~~,~~ and that net MWh quantity shall be reported to the NEPOOL GIS as specified in 225 CMR

16.~~04~~05(1)(c).

4. Paper-derived ~~–~~Fuel. This technology is no longer eligible because it was eliminated pursuant to Section two of Chapter 251 of the Acts of 2014, now codified at M.G.L. c. 25A, § 11F½.

~~A Generation Unit that uses Paper-derived Fuel may qualify as an APS Alternative Generation Unit subject to the limitations in 225 CMR 16.04(1)(a)4.~~

~~a. The Paper-derived Fuel shall displace, on an energy content basis, an equal or greater portion of the Unit's fossil fuel.~~

~~b. The Generation Unit Owner or Operator shall obtain an amendment to the Unit's Valid Air Permit to reflect usage of Paper-derived Fuel. The Generation Unit must demonstrate to the satisfaction of the Department that the emission rates for the entire Generation Unit are consistent with rates prescribed by the MassDEP for comparably fueled Generation Units in the Commonwealth. The Department may require the Generation Unit Owner or Operator to retain at its own expense a third-party consultant deemed satisfactory to the Department, to provide DOER and the MassDEP with assistance in this determination.~~

~~c. The Generation Unit's Owner or Operator shall provide the Department with copies of documentation provided to the MassDEP required under its beneficial use determination.~~

~~d. The portion of the electrical energy output of the Generation Unit that may qualify for APS Alternative Generation during any given time period shall be that portion attributable to the quantity of Paper-derived Fuel that is not derived from any fossil sources during that time period. The Department may require the Generation Unit Owner or Operator to retain at its own expense an independent, third-party consultant deemed satisfactory to the Department to verify the monitoring, calculation, and reporting of such portion.~~

5. Efficient Steam Technology. [RESERVED]

6. APS Renewable Thermal Generation Unit. A Generation Unit that uses one or more ~~a combination~~ of the technologies provided in 225 CMR 16.05(1)(a)6.a. and generates Useful Thermal Energy may qualify as an APS Alternative Generation Unit, subject to the limitations in 225 CMR 16.05(1)(a)6.a. and the provisions in 225 CMR 16.05(4).

a. Eligible APS Renewable Thermal Generation Unit technologies and standards:

i. Air-Source Heat Pump. ~~-~~An air-source heat pump Generation U~~u~~nit uses compression and evaporation to transfer thermal energy from the ambient outdoor environment to a thermal load as Useful Thermal Energy. The Generation U~~u~~nit must be designed to operate effectively in cold climates, such that the air-source heat pump provides meaningful net annual reductions in conventional energy use. Air-source heat pumps are provided APS Alternative Energy Attributes only when operating in a heating mode; that is, when transferring thermal energy from the ambient outdoor environment to a thermal

load. An applicant must demonstrate to the satisfaction of the Department that the air-source heat pump is the primary source of heating for the residential Generation Uunit, building, or process it serves, and meets the design criteria, ~~including the ability to operate at or above a threshold Coefficient of Performance at design conditions,~~ as provided in the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units.*

~~i.~~ Ground ~~and Water~~ Source Heat Pump. A ground ~~or water~~ source heat pump Generation Uunit uses compression and evaporation to transfer thermal energy from the ambient underground or water environment to a thermal load as Useful Thermal Energy. The Generation Uunit must receive all applicable permits, approvals, and registrations from the MassDEP. An applicant must demonstrate to the satisfaction of the Department that it meets the design criteria, ~~including the ability to operate at or above a threshold Coefficient of Performance at design conditions,~~ as provided in the Department's ~~*Renewable Thermal Technology Guideline*~~*Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units*. Ground or water-source heat pumps are provided APS Alternative Energy Attributes only when operating in a heating mode; that is, when transferring thermal energy from the ambient underground or water environment to a thermal load.

ii.

~~ii.~~ ~~iii.~~ Deep Geothermal Heat Exchange. A deep geothermal heat exchange Generation Uunit uses hot geological formations deep below the ground surface to produce heat through direct heat exchange. The Generation Uunit must receive all applicable permits, approvals, and registrations from the MassDEP, and must demonstrate to the Department it can operate at or above minimum performance requirements as provided in the Department's ~~*Renewable Thermal Technology Guideline.*~~*Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units.*

iii.

~~iii.~~ ~~iv.~~ Solar Thermal. A solar thermal Generation Uunit uses ~~flat plate, evacuated tube, or concentrating~~ collectors, to transfer solar irradiation energy to a working fluid, as well as a pump or fan to actively circulate the air, water, or other working fluid through the collectors. Solar thermal collectors 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. Unglazed flat plate collectors for pool heating are not eligible to qualify as an APS Renewable Thermal Generation Unit.

iv.

iv. v. Woody Biomass. A woody biomass Generation Uunit must use automatically fed boilers or furnaces, and must utilize either Eligible Biomass Woody Fuel, or pyrolysis oil or biogas derived from Eligible Biomass Woody Fuel. Woody biomass Generation Uunits must meet the provisions regarding efficiency, system performance, use of thermal energy storage, particulate matter and carbon monoxide emissions, fuel supply sustainability, fuel quality, and greenhouse gas emissions in 225 CMR 16.05(4)(g)d.iii. and the Department's *APS Guideline on Biomass, Biofuels and Biogas for Eligible Renewable Thermal Generation Units*, as well as receive all applicable permits from the MassDEP.

v.

vi. vi. Biogas. A biogas Generation Uunit uses Eligible Biogas Fuel derived from either an Anaerobic Digester, as that term is defined in 310 CMR 7.70(1)(b): *Definitions* or a landfill that has received all applicable permits from the MassDEP or comparable environmental agency responsible for regulating such facilities. Eligible Biogas Fuel must be conveyed directly from its source to the biogas Generation Uunit in a dedicated pipeline. Biogas Generation Uunits may co-fire with other fuels subject to the provisions in 225 CMR 16.05(2), and must meet quality and performance criteria provided in the Department's *APS Guideline on Biomass, Biofuels and Biogas for Eligible Renewable Thermal Generation Units*.

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vii. vii. Liquid Biofuels. A liquid biofuel Generation Uunit must use Eligible Liquid Biofuels. Liquid biofuel Generation Uunits may co-fire with other fuels subject to the provisions in 225 CMR 16.05(2), but shall contain at least 20%10% by volume Eligible Liquid Biofuel. The liquid biofuels Generation Uunit must meet quality and performance criteria provided in the Department's *APS Guideline on Biomass, Biofuels and Biogas for Eligible Renewable Thermal Generation Units*, and must receive all applicable permits from the MassDEP, and is subject to the provisions in 225 CMR 16.05(4)(f).

b. Determination of APS Alternative Generation Attributes. Each Generation Unit listed in 225 CMR 16.05(1)(a)6. shall earn APS Alternative Energy Attributes as specified in 225 CMR 16.05(1)(a)6.b., 225 CMR 16.05(4), and in the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units*, as follows:

i. An APS Renewable Thermal Generation Unit shall earn APS Alternative Energy Attributes for each MWh of net Useful Thermal Energy generated on a quarterly basis.

~~—~~Notwithstanding 225 CMR 16.05(1)(a)6.b.i., certain APS Renewable Thermal Generation Units that do not emit pollutants on-site may earn more than one APS Alternative Energy Attributes for each 3,412,000 British thermal units of net Useful Thermal Energy generated. An APS Renewable Thermal Generation Unit shall retain its multiplier provided at its time of qualification for its entire qualification period. Multipliers shall be assigned based on the APS Renewable Thermal Generation Unit technology type and system size, identified in 225 CMR 16.05(4)(a), as follows:

~~i. An APS Renewable Thermal Generation Unit shall earn APS Alternative Energy Attributes for each 3,412,000 British thermal units of net Useful Thermal Energy generated on a quarterly basis.~~

ii. ~~ii. Notwithstanding 225 CMR 16.05(1)(a)6.b.i., certain APS Renewable Thermal Generation Units that do not emit pollutants on-site may earn more than one APS Alternative Energy Attributes for each 3,412,000 British thermal units of net Useful Thermal Energy generated. The Department shall prescribe those non-emitting technologies and provide any such multipliers in the Department's *APS Guideline on AEC Multipliers for Non-emitting Technologies*. Such multipliers may be adjusted from time to time by the Department, but no less than three months prior to their effective date. When establishing multipliers, the Department may consider the value of building efficiency and appropriately account for improved building performance. An APS Renewable Thermal Generation Unit shall retain its multiplier provided at its time of qualification for its lifetime.~~

Technology	**APS Renewable Thermal Generation Unit multiplier**		
System size	**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 and/or space heating	1	1	1
Active solar hot air systems	-	5	5
Solar sludge dryer	-	-	1
Ground source heat pumps	5	5	5
Deep geothermal	-	-	1
Air source heat pumps (electric or	2	1	1

engine driven) – partial system			
Air source heat pump (electric or engine driven) – all other	3	3	3
Biomass, biofuels, biogas	N/A	N/A	N/A

In addition to the applicable APS Renewable Thermal Generation Unit multiplier, any small ground source heat pump or air source heat pump installed in a residential building shall be given two APS Alternative Energy Attributes per MWh of net Useful Thermal Energy generated, if the home achieves a Home Energy Rating System Index rating of 50 or less as defined by the Residential Energy Services Network system, and as documented by a certified Residential Energy Services Network professional. In addition to the applicable APS Renewable Thermal Generation Unit multiplier, any eligible ground source heat pump or air source heat pump installed in a non-residential building shall be given two APS Alternative Energy Attributes per MWh of net Useful Thermal Energy generated, if the building meets the definition of "Zero Energy" as defined by the United States Department of Energy publication "A Common Definition for Zero Energy Buildings," dated 15 September 2015, and as documented for the Statement of Qualification application by a Massachusetts licensed professional engineer.- More information on how to apply the APS Renewable Thermal Generation Unit multipliers can be found in the Department's *Guideline on AEC Multipliers for Renewable Thermal Generation Units*.

iii. —Earned APS Alternative Energy Attributes shall be for the generation of Useful Thermal Energy, net of any fossil fuel energy and electrical energy input to the APS Renewable Thermal Generation Unit necessary for its operation, however, the Department may exclude small energy uses, including but not limited to, fans, pumps, meters, controls, and data collection. The Department shall prescribe the calculations for netting energy input from the Useful Thermal Energy in the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units*.

iv. –Notwithstanding 225 CMR 16.05(1)(a)6.b.i., APS Alternative Energy Attributes for an APS Renewable Thermal Generation Unit that meets the criteria of a small Generation Unit, as defined in the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units*, may be:

(i) forward minted in each calendar quarter in a quantity equal to the APS Alternative Generation Attributes that the small Generation Unit is expected to generate; or

(ii) pre-minted in one calendar quarter in a quantity equal to the APS Alternative Generation Attributes that the small Generation Unit is

deemed to generate over its qualification period; as prescribed in 225 CMR 16.05(4)(c).

c. Energy Deliverability Requirement. An APS Renewable Thermal Generation Unit shall deliver Useful Thermal Energy to an end-use load located in the Commonwealth of Massachusetts.

~~d. Eligibility of RPS Class I Renewable Generation Units, RPS Class II Renewable Generation Units, and Combined Heat and Power Generation Units. An APS Renewable Thermal Generation Unit that is qualified as an RPS Class I Renewable Generation Unit pursuant to 225 CMR 14.00 or as an RPS Class II Renewable Generation Unit pursuant to 225 CMR 15.00 may also be qualified as an APS Renewable Thermal Generation Unit if it meets all appropriate criteria in 225 CMR 16.05(1)(a)6.a. However, a Combined Heat and Power Generation Unit that meets all appropriate criteria in 225 CMR 16.05(1)(a)2.a.-c. and also meets the criteria of an APS Renewable Thermal Generation Unit under 225 CMR 16.05(1)(a)6., shall be qualified under 225 CMR 16.00 as an APS Renewable Thermal Generation Unit. Generation Units which meet the criteria as both an APS Renewable Thermal Generation Unit and an APS Alternative Generation Unit shall have the option to switch their classification one time during the duration of their qualification period.~~

e. ~~-~~Combination of F~~f~~unding. If a Generation Unit receives any funding through a grant or incentive program administered by MassCEC or funding in an amount exceeding 50% of the Generation Unit's total construction and installation costs~~,~~ from ~~through one or more~~ a grant or incentive program~~s~~ administered by the Department or any other state agency~~, MassCEC, or both~~ prior to [**the Effective Date of this Subsection**], the Generation Unit shall not be eligible to qualify in the APS.

7. Fuel Cell. A Fuel Cell Generation Unit that produces electricity and/or useful thermal energy may qualify as an APS Alternative Generation Unit, subject to the limitations in 225 CMR 16.05(1)(a)7.

a. Source of Hydrogen. A Fuel Cell Generation Unit that uses hydrogen generated through the use of propane shall be required to certify that the propane was manufactured using only natural gas.

b. Overall Efficiency. To qualify as a APS Alternative Generation Unit, a Fuel Cell Generation Unit shall meet an overall efficiency of 60%. The overall efficiency of a Fuel Cell Generation Unit shall be calculated as the sum of MWh of electricity generated, excluding any electricity utilized for parasitic load, and MWh of Useful Thermal Energy, divided by the total MWh of fuel utilized by the Generation Unit.

c. Attribute Multiplier. A Fuel Cell Generation Unit shall earn one and a half APS Alternative Energy Attributes for each MWh of electricity and/or 3,412,000

British thermal units of net Useful Thermal Energy generated. A Fuel Cell Generation Unit shall retain the multiplier provided at its time of qualification as long as it continues to meet all other applicable eligibility criteria in 225 CMR 16.05.

d. Metering Requirements. The net energy output from a Fuel Cell Generation Unit shall be metered according to the specifications in the Department's Guideline on Metering and Calculating the Energy Output of Eligible Fuel Cell Generation Units and verified by an independent Third Party Meter Reader, as defined in Rule 2.5(j) of the NEPOOL GIS Operating Rules and approved by the Department. The APS Alternative Generation Attributes reported to the NEPOOL GIS by an independent Third Party Meter Reader shall be the amount that is qualified for Alternative Energy Attributes, as specified in 225 CMR 16.05. This amount will be inclusive of the application of any multiplier provided in 225 CMR 16.05(1)(a)7.c.

8. Thermal Waste-To-Energy. A Thermal Waste-to-Energy Generation Unit may qualify as an APS Alternative Generation Unit and shall be metered according to the specifications in the Department's Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units.

(b) Commercial Operation Date. With the exception of Thermal Waste-to-Energy Generation Units, an APS Alternative Generation Unit's ~~The~~ Commercial Operation Date shall be on or after January 1, 2008, however, for an APS Renewable Thermal Generation Unit, the Commercial Operation Date shall be on or after January 1, 2015, and for a Fuel Cell Generation Unit, the Commercial Operation Date shall be on or after January 1, 2017.

(c) Metering. ~~The electrical energy output from a Generation Unit shall be verifiable by the ISO-NE, except that, in the case of a Unit that is a non-participant in the ISO-NE Settlement Market System, or is a Flywheel Storage Unit, a CHP Generation Unit, or an Aggregation, the electrical energy output from~~ Except as provided in 225 CMR 16.05(4)(~~a~~b), the APS Alternative Generation from a Generation Unit shall be verified by an independent verification system or person participating in the NEPOOL GIS accounting system as an independent Third Party Meter Reader, as defined in Rule 2.5(j) of the NEPOOL GIS Operating Rules, or any successor rule, and approved by the Department. The ~~electrical energy output~~APS Alternative Generation reported to the NEPOOL GIS by a Third Party Meter Reader shall be the net amount that is qualified for Alternative Energy Attributes, as specified in 225 CMR 16.~~04.~~05.

(d) Location. The Generation Unit must be located within the ISO-NE Control Area, except where otherwise specified in 225 CMR 16.00, and subject to the limitations in 225 CMR 16.~~04~~05(1)(d).

1. Off-grid Generation. If the Generation Unit produces Off-grid Generation, such Unit must be located in Massachusetts.

2. Behind-the-meter Generation. If the Generation Unit is wired to the electrical

system on the End-use Customer's side of a retail electric meter, such Unit must be located within the ISO-NE Control Area.

(e) Net Carbon Dioxide Emissions Rate. A Generation Unit shall not exceed a net carbon dioxide emissions rate ~~of 890 pounds per MWh, including all net carbon dioxide emission~~equal to the average emissions rate of existing natural gas plants in Massachusetts at the time when the Generation Unit is qualified. The average emissions rate will include all net carbon dioxide emissions related to combustion, gasification, fuel processing, and sequestration, whether or not such activities occur at the Generation Unit or another location ~~and~~. In the case of a CHP Unit under 225 CMR 16.05(1)(a)2., the emissions rate shall also include net carbon emissions associated with the thermal delivery. The Department, in consultation with MassDEP, shall publish the net carbon dioxide average emissions rate on its website and update the rate at least every two years. The monitoring, calculation, and reporting of the net carbon dioxide emissions rate shall be subject to verification by an independent consultant acceptable to the Department and, in consultation with the MassDEP and at the expense of the Unit's Owner or Operator. An APS Renewable Thermal Generation Unit using either Eligible Biomass Woody Fuel, or pyrolysis oil or biogas derived from Eligible Biomass Woody Fuel pursuant to 225 CMR 16.05(1)(a)6.a.v. shall not be subject to the net carbon dioxide emissions rate in 225 CMR 16.05(1)(e), but instead subject to the net greenhouse gas emission requirement in 225 CMR 16.05(4)(i~~d~~)~~(iii)~~.

(f) Eligibility of RPS Class I Renewable Generation Units, and RPS Class II Renewable Generation Units. A Generation Unit that is qualified as an RPS Class I Renewable Generation Unit pursuant to 225 CMR 14.00 or as an RPS Class II Renewable Generation Unit pursuant to 225 CMR 15.00 may also be qualified as an APS Alternative Generation Unit provided it meets all eligibility criteria in 225 CMR 16.00.

(g) Reclassification of APS Alternative Generation Units. An APS Alternative Generation Unit that meets the eligibility to qualify more than one type of APS Alternative Generation Unit shall only qualify as one type of APS Alternative Generation Unit, which the Owner shall designate in its Statement of Qualification Application. An APS Alternative Generation Unit shall have the option to switch the type of APS Alternative Generation Unit for which it has received a Statement of Qualification one time during the duration of its qualification period.

(2) Co-firing Waiver. A portion of the electrical energy or Useful Thermal Energy output of a Generation Unit that uses an APS Ineligible Energy Source with another fuel may qualify as APS Alternative Generation provided the Generation Unit meets the eligibility requirements of 225 CMR 16.~~04~~05, subject to the limitations in 225 CMR 16.~~04~~05(2).

(a) The percentage of the total electrical energy or Useful Thermal Energy output that qualifies as APS Alternative Generation in a given time period shall be equal to one minus the ratio of the net heat content of the APS Ineligible Energy Source consumed to the net heat content of all fuel consumed in that time period.

(b) If co-firing an APS Ineligible Energy Source with another fuel, the entire

Generation Unit must demonstrate to the satisfaction of the Department in consultation with the MassDEP that the Unit meets or will meet the emission performance standards, including the net carbon dioxide emissions rate, that are or would be required by the MassDEP for comparably-fueled Units within Massachusetts, including the standards specified for the technology type of the Unit as set forth in 225 CMR 16.~~04~~05(1)(a) and (e). The Department may require the Generation Unit Owner or Operator to retain at its own expense a third-party consultant deemed satisfactory to the Department, to provide DOER and the MassDEP with assistance in determining whether this criterion is or will be met by the Unit.

(c) The Generation Unit must provide a fuel supply plan that specifies each and every fuel that it intends to use, in what relative proportions in co-firing, and with what individual input heat values. Such plan shall include the procedures by which the Unit will document to the satisfaction of the Department its compliance with the plan.

(d) The provisions of 225 CMR 16.~~04~~05(2) shall not apply to the incidental use of an APS Ineligible Energy Source solely for the purpose of cold starting a Generation Unit that otherwise exclusively uses other fuels.

(3) Special Provisions for Aggregations. An Aggregation of Generation Units that are located behind the customer meter or that are Off-grid Generation Units, each of which could independently meet the relevant requirements of 225 CMR 16.~~04~~05, may receive a single SQ and be treated as a single APS Alternative Generation Unit under the following criteria and procedures:

(a) Each Generation Unit in such Aggregation must use the same technology as all other Units in the Aggregation.

(b) Each of the Owners or Operators of Generation Units within the Aggregation must enter into an agreement with a person or entity that serves as the Authorized Agent for the Aggregation in all dealings with the Department and with the NEPOOL GIS, and such agreement must include procedures by which the electrical energy output and, in the case of a CHP Unit, the Useful Thermal Energy output and fuel input, of each Unit shall be monitored and reported to the NEPOOL GIS.

(c) The Authorized Agent of the Aggregation must establish and maintain a Generator account at the NEPOOL GIS under the NEPOOL GIS Operating Rules, including all provisions for Non-NEPOOL Generator Representatives, as that term is defined in Rule 2.1(a)(vi) of the NEPOOL GIS Operating Rules.

(d) The electrical energy output, or the Alternative Energy Attribute qualified portion of such output as provided in 225 CMR 16.~~04~~05(1)(a)2.a~~. and in.~~, 225 CMR 16.~~04~~05(1)(a)3., or 225 CMR 16.05(1)(a)6., of each of the Generation Units in the Aggregation must be individually monitored and recorded, and it must be reported to the NEPOOL GIS as part of an aggregated total for the Aggregation, by an independent Third Party Meter Reader as defined in Rule 2.5(j) of the NEPOOL GIS Operating Rules.

(4) ~~)~~ Special Provisions for APS Renewable Thermal Generation Units. A Generation

Unit that meets the eligibility provisions under 225 CMR 16.05(1)(a)6., shall be subject to the following provisions:

(a) Size Classification. APS Renewable Thermal Generation Units shall be classified as small, intermediate, or large based on the rated capacity of the system. If an APS Renewable Thermal Generation Unit consists of several individual and separate units, the individual unit's capacities shall be summed and the total capacity will be considered against the size threshold. In the case of a combination of solar thermal technologies and other technologies, the thresholds shall be applied separately to the solar and non-solar units. APS Renewable Thermal Generation Unit size classifications are as follows:

Classification	**Small**	**Intermediate**		**Large**
AEC calculation basis	**Calculated net renewable thermal output**	**Calculated net renewable thermal based on indirect metering**	**Calculated net renewable thermal output based on direct metering of fuel input**	**Metered net renewable thermal output**
Solar thermal: evacuated tube and flat plate solar hot water	Collector surface area less than 660 sq ft	Collector surface area between 660 and 4,000 sq ft	-	Collector surface area greater than 4,000 sq ft
Solar thermal: solar hot air	-	Collector surface area less than 10,000 sq ft	-	Collector surface area greater than 10,000 sq ft
Solar sludge dryer	-	-	-	All
Eligible Biomass Fuel	-	-	Capacity less than 1,000,000 Btu per hour	Capacity greater than 1,000,000 Btu per hour
Air source heat pump: electric motor or engine driven	Output capacity less than 134,000 Btu per hour	-	Output capacity between 134,000 and 1,000,000 Btu per hour	Output capacity greater than 1,000,000 Btu per hour
Ground source heat pump	Output capacity less than 134,000 Btu per hour	-	Output capacity between 134,000 and 1,000,000 Btu per hour	Output capacity greater than 1,000,000 Btu per hour
Deep geothermal	-	-	-	All

(ba) Metering Requirements. The net Useful Thermal Energy output from an APS Renewable Thermal Generation Unit shall be metered according to the specifications in the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units* and verified by an independent Third Party Meter Reader, as defined in Rule 2.5(j) of the NEPOOL GIS Operating Rules and approved by the Department. The APS Alternative Generation Attributes reported to the NEPOOL GIS by an independent Third Party Meter Reader shall be the amount as specified in 225 CMR 16.05(1)(a)6.b. This amount will be inclusive of any netting of energy use by the APS Renewable Thermal Generation Unit as prescribed in 225 CMR 16.05(1)(a)6.b.iii., and the application of any multiplier in 225 CMR 16.05(1)(a)6.b.ii.

1i. An APS Renewable Thermal Generation Unit that uses more than one eligible technology in 225 CMR 16.05(1)(a)6.a. is required to use the same independent Third Party Meter Reader for all technologies.

2ii. Each APS Renewable Thermal Generation Unit is required to have its own individual NEPOOL GIS assetidentification. An APS Renewable Thermal Generation Unit that uses more than one eligible technology in 225 CMR 16.05(1)(a)6.a. is required to have a NEPOOL GIS assetidentification for each technology. APS Renewable Thermal Generation Units that utilize the same technology and are located in the same state may qualify as an Aggregation and share a NEPOOL GIS asset.

3iii. An APS Renewable Thermal Generation Unit that meets the criteria of a small Generation Unit or an intermediate as prescribed in 225 CMR 16.05(1)(b)(ii) ~~the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units*~~ shall be exempt from the metering requirements in 225 CMR 16.05(4)(ab) and, instead, be subject to the sSmall and Intermediate Generation Unit Annual Net Useful Thermal Energy Determination in 225 CMR 16.05(4)(bc).

(cb) Small and Intermediate Generation Unit Annual Net Useful Thermal Energy Determination. An APS Renewable Thermal Generation Unit that meets the criteria of a small or intermediate Generation Unit as prescribed in the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units* may ~~shall~~ have its annual net Useful Thermal Energy generation output determined by a formula or methodology as prescribed in the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units*. This approximation shall be a ~~best~~ reasonable determination by the Department to estimate the net Useful Thermal Energy delivered by the APS Renewable Thermal Generation Unit, specifically considering the APS Renewable Thermal Generation Unit's capacity, performance characteristics, and load application being served. The MassCEC will act as the independent verifier for all small Generation Units and intermediate Generation Units using Eligible Biomass Woody Fuel, and will deploy appropriate and reasonable measures to verify ongoing operation of the small Generation Units in line with their estimated net Useful Thermal Energy generation.

(d~~e~~) Forward Minting and Pre-Minting of APS Alternative Generation Attributes for small APS Renewable Thermal Generation Units. An APS Renewable Thermal Generation Unit that meets the criteria of a small Generation Unit as prescribed in the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units* may~~shall~~ be provided all of its APS Alternative Generation Attributes as follows:

1~~i~~. The APS Renewable Thermal Generation Unit may~~shall~~ have all of the APS Alternative Generation Attributes in 225 CMR 16.05(4)(c)~~(i)~~ pre-minted as APS Alternative Generation Attributes, and may~~shall~~ be minted in the first quarter after the APS Alternative Generation Unit's Statement of Qualification or Commercial Operation Date, whichever is later. The volume of pre-minted APS Alternative Generation Attributes shall be equal to 40 times the quarterly volume of the monthly forward minted Attributes determined in 225 CMR 16.05(4)(c)~~(i)~~.

2~~ii~~. In a Compliance Year in which the ratio of the APS Alternative Generation Attributes settled for compliance to the APS c~~C~~ompliance o~~O~~bligation from the Compliance Year two years prior was more than 0.75, the APS Renewable Thermal Generation Unit shall be forward minted each quarter for the 40 quarters following its Statement of Qualification or its Commercial Operation Date, whichever is later, a quantity of APS Alternative Generation Attributes equal to one-fourth of the annual net useful thermal energy determination as provided in 225 CMR 16.05(4)(~~b~~c), times any applicable multiplier as provided in 225 CMR 16.05(1)(a)6.b.ii.

Generation Units that are eligible for forward minting or pre-minting may choose at the start of their qualification period to forgo forward minting or pre-minting and instead meter their Useful Thermal Load and receive Generation Attributes quarterly. All small Generation Units that forgo their right to forward minting or pre-minting must meet all eligibility criteria of an intermediate or large system as defined in the Department's *Guideline on Metering and Calculating the Useful Thermal Output of Eligible Renewable Thermal Generation Units.*

(e) Eligibility Criteria for Small Air Source Heat Pumps. All small air source heat pump Renewable Thermal Generation Units, as prescribed in 225 CMR 16.05(4)(a), must:

1. be ENERGY STAR™ certified;

2. meet the Cold Climate Air Source Heat Pump Specification (Version 2.0) published by Northeast Energy Efficiency Partnerships effective January 1, 2017;

3. have a variable speed compressor; and

4. be part of an Air-Conditioning, Heating, & Refrigeration Institute matched system.

For new construction, the small air source heat pump Renewable Thermal Generation Unit must supply 100% of the building's total annual heating and cannot have any supplemental, non-renewable heating sources. In retrofit construction or existing buildings, all small air source heat pump Renewable Thermal Generation Units that do

not meet the above requirement must be used as the primary source of heat, supply at least 90% of the total annual heating, be integrated to a heating distribution system, capable of distributing produced heat to all conditioned areas of the building, and have a heat-rate capacity at five degrees Fahrenheit that is at least 50% of the nameplate capacity of the existing heating source equipment.

(f) Eligibility Criteria for Small Ground Source Heat Pumps. All small ground source heat pumps Renewable Thermal Generation Units, as prescribed in 225 CMR 16.05(4)(a), must meet the following requirements:

1. be certified to the International Organization for Standards Standard 13256-1 Water-source heat pumps -- Testing and rating for performance -- Part 1: Water-to-air and brine-to-air heat pumps, 1998 or the International Organization for Standards Standard 13256-2 Water-source heat pumps -- Testing and rating for performance -- Part 2: Water-to-water and brine-to-water heat pumps, 1998;

2. have American Heating and Refrigeration Institute rated operating coefficient of performance and operating energy efficiency ratio equal to or greater than the following:

Small ground source heat pump system type	**Cooling energy efficiency ratio**	**Heating coefficient of performance**
Closed loop water to air	17.1	3.6
Open loop water to air	21.1	4.1
Closed loop water to water	16.1	3.1
Open loop water to water	20.1	3.5

3. be installed by licensed contractors and/or plumbers in accordance with the National Electric Code and manufacturer's specifications and must conform to all applicable municipal, state, and federal codes, standards, regulations, and certifications, as well as program requirements;

4. have blowers that are multi-speed or variable-speed, high-efficiency motors. Motors qualify as energy-efficient if they meet or exceed the efficiency levels listed in the National Electric Manufacturers Association's MG1-1993 publication;

5. use compressors that are two-stage, multi-speed, or variable-speed drives, unless they are water-to-water units. Single-stage water-to-water systems are eligible, provided they include accumulator tanks with the greater of ten gallons of capacity per heating ton or industry/manufacturer recommended best practice;

6. for vertically bored closed-loop systems, Generation Units must have a minimum depth of 150 feet per 12,000 Btu per hour of heating load served by the system;

7. all closed-loop bore grouting must have a grout conductivity equal to or greater than anticipated earth conductivity of the drill site up to 1 Btu per hour-foot-degree Fahrenheit;

8. have at least 15 feet of separation between closed-loop bore holes;

9. must comply with MassDEP Bureau of Resource Protection Drinking Water Program, Guidelines For Ground Source Heat Pump Wells, and Underground Injection Control Program, December 2013;

10. all open-loop system wells shall be installed in conformance with MassDEP's Private Well Guidelines or MassDEP's Guidelines and Policies for Public Water Systems, whichever is applicable;

11. all system wells shall be installed in conformance with 313 CMR 3.00: *Registration of Well Drillers and Filing of Well Completion Reports*;

12. standing column wells must include bleed circuits and drywells to maximize thermal efficiency based on available water production; and

13. all systems must supply 100% of a building's total annual heating; non-renewable supplemental heat sources are prohibited.

(g~~d~~) -Restrictions and Standards on the Use of Eligible Biomass Woody Fuel. An APS Renewable Thermal Generation Unit using Eligible Biomass Woody Fuel is subject to the following restrictions:

1~~i~~. –Fuel Quality and Unit Control Device Requirements. Eligible ~~Woody~~ Biomass Woody Fuel shall ~~be produced using only clean wood, and~~ meet at least one of the following fuel quality specifications:

i. A boiler or furnace of less than 3,000,000 Btu per hour rated heat input that utilizes an emission control device (e.g., electrostatic precipitator), subject to the approval of the Department in consultation with MassDEP, does not have to meet the fuel quality specifications in 225 CMR 16.05(4)(g)1.ii. The emissions control device shall be designed and operated to ensure that the boiler or furnace does not exceed the applicable particulate matter emission limit in 225 CMR 16.05(4)(g)5.

ii. A boiler or furnace of less than 3,000,000 Btu per hour rated heat input that does not utilize an emission control device (e.g., electrostatic precipitator) must meet the following fuel quality specifications:

Fuel quality specifications	**Pellets**	**Chips**
Calorific value	Greater than 8,000 Btu per pound	Greater than 5,950 Btu per pound

Moisture	Less than 8 percent	Less than or equal to 35 percent
Ash content by weight	Less than 1 percent	Less than 1.5 percent
Chip size (percent retained by a half inch mesh screen)	Not applicable	75 percent
Chlorides	Less than or equal to 300 parts per million	Not applicable
Source materials	Only Eligible Biomass Woody Fuel	

iii. A boiler or furnace of equal to or greater than 3,000,000 Btu per hour rated heat input must receive a MassDEP plan approval pursuant to 310 CMR 7.02(5), which shall dictate fuel quality specifications.

~~, as provided in the Department's *APS Guideline on Biomass, Liquid Biofuels and Biogas.*~~

2~~ii~~. ~~–~~Sustainable Forestry Management. Forest Derived Residues and Thinnings shall only be sourced from forests meeting S~~s~~ustainable F~~f~~orestry M~~m~~anagement practices, as independently verified through the attestation of a licensed forester or independent certification.~~d according to the specifications in the Department's *APS Guideline on Biomass, Liquid Biofuels and Biogas.*~~

3. System Performance. APS Renewable Thermal Generation Units shall meet fuel conversion efficiency -and performance standards achievable by best-in-class commercially-feasible technologies, identified in the following table:

Performance requirement	**Pellets**	**Chips**
Thermal efficiency at nominal output	Greater than or equal to 85 percent Higher Heating Value	Greater than or equal to 75 percent Higher Heating Value or Greater than or equal to 80 percent Lower Heating Value if EN303-5 is used to verify particulate emissions
Start up	Automatic (i.e., electric ignition)	
Modulation/shut off	The system must automatically modulate to lower output and/or turn itself off when the heating load decreases or is satisfied	

Multi-pass heat exchanger	Required
Pressurized portion of the system	American Society of Mechanical Engineering certification required
Thermal storage	Required, unless the manufacturer has submitted independent third party test results documenting that the heating system meets the MassCEC's requirements
Fuel storage	The system must have covered bulk storage
Feedstock conveyance	The system must be automatically fed from feedstock storage to the furnace or boiler

4. Thermal Storage. Generation Units ~~and~~ shall minimize any significant deterioration of efficiency or air emissions performance due to cycling by applying correctly sized and insulated thermal storage unless the system can maintain efficiency and air emissions performance at low capacity without thermal storage. Thermal storage shall meet the following size thresholds:

Lead boiler system size (heat input)	**Thermal storage required**
Less than 80,000 Btu per hour	80 gallons
Between 80,000 Btu per hour and 119,000 Btu per hour	1 gallon per 1,000 Btu per hour
Between 119,000 Btu per hour and 1,000,000 Btu per hour	119 gallons
Greater than 1,000,000 Btu per hour	2 gallons per 1,000 Btu per hour

A Generation Unit that can demonstrate to the Department that an inclusion of thermal storage would deteriorate the efficiency or air emissions performance of the Generation Unit may apply for an exception from the requirements in 225 CMR 16.06(4)(g)4. ~~as detailed in the Department's *APS Guideline on Biomass, Liquid Biofuels and Biogas.*~~

5. ~~v.~~ Emission Performance Standards. APS Renewable Thermal Generation Units shall meet air emission performance standards that are protective of public health, including standards for particulate matter sized 2.5 microns or less and carbon monoxide, as ~~detailed~~identified in the following table:

A boiler or furnace of less than 3,000,000 Btu per hour rated heat input must meet the

applicable emission limits below:		
Pollutant	**Pellets / liquid biofuels / biogas**	**Chips**
Particulate Matter	No more than 0.08 lb $PM_{2.5}$ per 1,000,000 Btu $_{input}$ or No more than 0.03 lb $PM_{2.5}$ per 1,000,000 Btu $_{input}$ at sensitive populations	No more than 0.10 lb $PM_{2.5}$ per 1,000,000 Btu $_{input}$ or No more than 0.05 lbs total PM per 1,000,000 Btu $_{input}$ if EN303-5 is used to verify emissions or No more than 0.03 lb $PM_{2.5}$ per 1,000,000 Btu $_{input}$ at sensitive populations
Carbon monoxide	No more than 270 parts per million at 7 percent oxygen	No more than 270 parts per million at 7 percent oxygen
A boiler or furnace of greater than or equal to 3,000,000 Btu per hour rated heat input:		
Particulate matter, carbon monoxide, and other relevant criteria pollutants	MassDEP plan approval required, pursuant to 310 CMR 7.02(5).	

For the purpose of this provision, sensitive populations include schools, hospitals, nursing homes, or additional facilities determined by the Department. ~~in the Department's *APS Guideline on Biomass, Liquid Biofuels and Biogas.*~~

~~vi. Aggregation of Units using Eligible Liquid Biofuels. An APS Renewable Thermal Generation Unit using Neat Eligible Liquid Biofuels or Eligible Liquid Biofuels blended with heating oil shall seek qualification as an APS Renewable Thermal Generation Unit only as part of an Aggregation, as provided for in 225 CMR 16.05(3).~~ 6. Verification of Eligible Biomass Woody Fuel. In order to verify the use of Eligible Biomass Woody Fuel, an APS Renewable Thermal Generation Unit shall report the following to the Department on a quarterly basis:

a. Supplier of the fuel;
b. Amount of fuel delivered;
c. Date of delivery; and
d. Fuel quality specifications prescribed in 225 CMR 16.05(4)(g)1., including a certification that any emission control device was operated and maintained in accordance with the manufacturer's specifications in order to comply with the applicable particulate matter emission limit in 225 CMR 16.05(4)(g)5.

The Department will review the Department's *APS Guideline on Biomass, Liquid*

Biofuels and Biogas every two years in consultation with the MassDEP and DCR and update the Guideline where appropriate. The Department will assess the impact of biomass heating on the region's forests every five years, beginning in 2020 and in coordination with the Forest Impact Assessment under the Renewable Portfolio Standard Class I, as prescribed in 225 CMR 14.05(8)(b)2., and make program changes as necessary. The Department will report annually on the aggregate woody biomass fuel composition used in qualified APS Renewable Thermal Generation Units.

(h) Aggregation of Units using Eligible Liquid Biofuels. An APS Renewable Thermal Generation Unit using Eligible Liquid Biofuels or Eligible Liquid Biofuels blended with heating oil shall seek qualification as an APS Renewable Thermal Generation Unit only as part of an Aggregation, as provided for in 225 CMR 16.05(3).

(i) ~~iii.~~ Greenhouse Gas Emission Reduction. APS Renewable Thermal Generation Units utilizing biomass, biogas, or biofuel shall reduce life-cycle greenhouse gas emissions by at least 50% compared to a high-efficiency unit utilizing the fuel that is being displaced or~~,~~ for a new load, a high-efficiency natural gas unit, if natural gas is available at reasonable cost to the site, or otherwise, the fuel that is most likely to be utilized. The procedures for calculating whether a Generation Unit meets the 50% reduction can be found in the Department's *Guideline on Biomass, Biogas, and Biofuels for Eligible Renewable Thermal Generation Units* and in the Department's *Guideline on Reduction of Greenhouse Gases for Eligible Renewable Thermal Generation Units Using Eligible Woody Biomass.*~~To that end, an APS Renewable Thermal Generation Unit using Eligible Biomass Woody Fuel shall contain at least 50% Residues or Forest Salvage and not more than 50% Thinnings~~ .Generation Units that report a percent under-compliance in 225 CMR 16.05(4)(i), shall be placed in a probationary status and the Department shall notify the Owner that its Statement of Qualification shall be revoked at the end of five Compliance Years following the Compliance Year for which the percent under-compliance was reported. The Generation Unit's probationary status shall be rescinded and the Generation Unit's Statement of Qualification shall no longer be subject to revocation if either:

1. for any three Compliance Years of the probationary period the Generation Unit demonstrates that it is complying with the lifecycle greenhouse gas emissions requirements; or

2. the Generation Unit's accumulated percent under-compliance is offset by any net over-compliance with the lifecycle greenhouse gas emissions requirement during the probationary period.

(j) Cap on the Available Number of Attributes for Generation Units Using Eligible Liquid Biofuel. In each Compliance Year the total number of Attributes minted to Generation Units using Eligible Liquid Biofuel may not exceed 20% of the total projected annual compliance obligation for the Compliance Year, in which they are generated, with 5% of the total projected annual compliance obligation available per quarter. The Department shall estimate the compliance obligation by multiplying the Minimum

Standard percentage by the total MWh of electrical energy sales by Retail Electricity Suppliers to End-use Customers in the Compliance Year two years prior. The Department shall calculate the annual and per quarter number of Attributes available for Generation Units using Eligible Liquid Biofuel in a given Compliance Year no later than August 31st of the preceding Compliance Year. The Department shall publish this information on its website. If 100% of the Attributes available for a given quarter are not allocated, the remaining number of Attributes shall be rolled over and allocated during the remaining quarters in that calendar year. If the number of Attributes reported by Generation Units exceeds the available Attributes for a given quarter, the number of available Attributes shall be allocated on a pro-rata basis.

(k) Eligible Biomass Woody Fuel Suppliers List. The Department shall establish and maintain a list of suppliers of Eligible Biomass Woody Fuel on its website. Any fuel supplier wishing to be included on the Department's list must complete the application provided on the Department's website. Suppliers will be classified into one of three classes based on the percentage of residues contained in the fuel distributed to Generation Units and the fuel being displaced by the Generation Unit, as follows:

Class	Fuel being displaced	Minimum combined percentage of Forest Derived Residues, Non-Forest Derived Residues, and Forest Salvage
Class I	Natural gas, electric resistance, propane, fuel oil #6, fuel oil #2	55%
Class II	Electric resistance, propane, fuel oil #6, fuel oil #2	50%
Class III	Fuel oil #6, fuel oil #2	35%

Upon qualification Generation Units will be notified by the Department which fuel class they must purchase when sourcing fuel from a supplier on the Department's Biomass Suppliers List. Any Generation Unit that desires to purchase fuel from a supplier not on the Department's Biomass Suppliers List may request approval from the Department and shall be required to provide additional information. Generation Units displacing an existing biomass system shall have their fuel class determined by the Department.

(l) Eligible Liquid Biofuel Suppliers List. The Department shall establish and maintain a list of suppliers of Eligible Liquid Biofuel on its website. A fuel supplier must complete and submit an application to the Department to be included on the Department's Eligible Liquid Biofuel suppliers list. Fuel suppliers must have an approved Quality Assurance Plan issued by the Environmental Protection Agency for verifying the validity of Renewable Identification Numbers under the Renewable Fuel Standard program.

16.06: Statement of Qualification Process for APS Alternative Generation Units

(1) Statement of Qualification Application. A Statement of Qualification Application shall be submitted to the Department by the Owner or Operator of the Generation Unit or Aggregation. The applicant must use the most current forms and associated instructions provided by the Department, and must include all information, documentation, and assurances required by such forms and instructions. Applications for APS Renewable

Thermal Generation Units shall be submitted through the online registration platform of the MassCEC.

(2) Review Procedures.

(a) The Department will notify the applicant when the Statement of Qualification Application is administratively complete or if additional information is required pursuant to 225 CMR 16.~~05~~06(1).

(b) The Department may, in its sole discretion, provide an opportunity for public comment on any Statement of Qualification Application.

(3) Issuance or Non-issuance of a Statement of Qualification.

(a) If the Department finds that all or a portion of the electrical energy output of a Generation Unit or of an Aggregation meets the requirements for eligibility as APS Alternative Generation pursuant to 225 CMR 16.~~04~~05, the Department will provide the Owner or Operator of such Unit or Aggregation with an SQ.

(b) The SQ shall include any applicable restrictions and conditions that the Department deems necessary to ensure compliance by a particular Generation Unit or Aggregation with the provisions of 225 CMR 16.00.

(c) If the Generation Unit or Aggregation does not meet the requirements for eligibility as an APS Alternative Generation Unit, the Department shall provide written notice to the Owner or Operator, including the Department's reasons for such finding.

(4) APS Effective Date. The APS Effective Date shall be the earliest date on which electrical energy output of an APS Alternative Generation Unit can result in the creation of APS GIS Certificates, except that the APS Effective Date shall not be earlier than the date on which the Department determines that the Unit has commenced compliance with the applicable emission standards in its SQ. But in no instance shall the APS Effective Date be earlier than January 1, 2009.

(5) Notification Requirements for Change in Eligibility Status. The Owner or Operator of an APS Alternative Generation Unit shall notify the Department of any changes in the technology, operation, emissions, fuel sources, energy resources, or other characteristics of the Generation Unit that would affect the eligibility of the Unit as an APS Alternative Generation Unit. The Owner or Operator shall submit the notification to the Department no later than five days following the end of the month during which such changes were implemented. The notice shall state the date the changes were made to the APS Alternative Generation Unit and describe the changes in sufficient detail to enable the Department to determine if a change in eligibility is warranted.

(6) Notification Requirements for Change in Ownership, Generation Capacity, or Contact Information. The Owner or Operator of an APS Alternative Generation Unit shall notify the Department of any changes in the ownership, operating entity, generation capacity, NEPOOL GIS account, independent verification system for the Unit's or Aggregation's electrical

energy output, or contact information for the Generation Unit or Aggregation. The Owner or Operator shall submit the notification to the Department no later than five days following the end of the month during which such changes were implemented.

(7) Time Limit for Project Implementation. Any SQ issued on or after June 12, 2009 shall expire 48 months after the issuance date of the SQ (the Expiration Date) unless the Commercial Operation Date of the Generation Unit or Aggregation is on or before the Expiration Date. The Department may, at its discretion, grant an extension of the Expiration Date of the SQ upon petition by the Owner or Operator of the Generation Unit or Aggregation. If the Owner or Operator of such Unit or Aggregation desires an extension, such Owner or Operator must submit a new SQ Application, and the decision of the Department on such new application may be made in accordance with the regulations and criteria that are applicable on the date that the Department receives that application.

(8) Suspension or Revocation of Statement of Qualification. The Department may suspend or revoke an SQ if the Owner or Operator of an APS Alternative Generation Unit fails to comply with 225 CMR 16.00.

16.~~06~~07: Alternative Energy Portfolio Standard

(1) APS Minimum Standard. The total annual sales of each Retail Electricity Product sold to Massachusetts End-use Customers by a Retail Electricity Supplier, under contracts executed or extended on or after January 1, 2009, shall include a minimum percentage of electrical energy sales with APS Alternative Generation Attributes, as specified in the table in 225 CMR 16.~~06~~.07.

MASSACHUSETTS ALTERNATIVE ENERGY PORTFOLIO STANDARD

MINIMUM PERCENTAGES OF ANNUAL ELECTRICAL ENERGY SALES WITH APS ALTERNATIVE GENERATION ATTRIBUTES

Compliance Year	Cumulative Minimum Percentage
2009	1.00
2010	1.50
2011	2.00
2012	2.50
2013	3.00
2014	3.50
2015	3.75
2016	4.00
2017	4.25
2018	4.50
2019	4.75
2020	5.00

(2) Post-2020 Minimum Standard. After 2020, the Minimum Standard shall increase by 0.25% per Compliance Year.

(3) 2020 APS Minimum Standard Review. Not later than December 31, 2020, the Department shall complete a review 225 CMR 16.00, which shall include a public comment period. The review will include, but not be limited to, an examination of the costs and benefits of the program to ratepayers, an examination of the effectiveness of the program in meeting the energy and environmental goals of the Commonwealth, and an evaluation of whether the Minimum Standard or its rate of increase, as established in 225 CMR 16.07(2), should be adjusted. This requirement shall not preclude the Department from otherwise reviewing or amending 225 CMR 16.00.

16.~~07~~08: Compliance Procedures for Retail Electricity Suppliers

(1) Standard Compliance. Each Retail Electricity Supplier shall be deemed to be in compliance with 225 CMR 16.00 if the information provided in the Compliance Filing submitted pursuant to 225 CMR 16.~~08~~09 is true and accurate and demonstrates compliance with 225 CMR 16.~~06~~07. A Retail Electricity Supplier shall demonstrate to the satisfaction of the Department that APS Alternative Generation Attributes used for compliance have not otherwise been, nor will be, sold, retired, claimed, used or represented as part of electrical energy output or sales, or used to satisfy obligations in jurisdictions other than Massachusetts.

(2) Banked Compliance. A Retail Electricity Supplier may use APS Alternative Generation Attributes produced in one Compliance Year for compliance in either or both of the two subsequent Compliance Years, subject to the limitations in 225 CMR 16.~~07~~08(2) and provided that the Retail Electricity Supplier is in compliance with 225 CMR 16.00 for all previous Compliance Years. In addition, the Retail Electricity Supplier shall demonstrate to the satisfaction of the Department that such Attributes:

(a) were in excess of the APS Alternative Generation Attributes needed for compliance in the Compliance Year in which they were generated, and that such excess Attributes have not previously been used for compliance with 225 CMR 16.00;

(b) do not exceed 30% of the APS Alternative Generation Attributes needed by the Retail Electricity Supplier for compliance with the APS Minimum Standard in the year they were generated, subject to 225 CMR 16.~~08~~09(2)(d);

(c) were produced during the Compliance Year in which they are claimed as excess by the generation of electrical energy sold to End-use Customers in the ISO-NE Control Area, by the generation of electrical energy on End-use Customers' sides of retail meters in the ISO-NE Control Area, or by the generation of electrical energy from Off-grid Generation Units in Massachusetts; and

(d) have not otherwise been, nor will be, sold, retired, claimed or represented as part of electrical energy output or sales, or used to satisfy obligations in jurisdictions other than Massachusetts.

(3) Alternative Compliance. A Retail Electricity Supplier may discharge its obligations under 225 CMR 16.~~06~~07, in whole or in part, for any Compliance Year by making an Alternative Compliance Payment (ACP) to the Massachusetts Clean Energy Technology Center, established by M.G.L. c. 23J, § 2. Such funds shall be held in an account separate from other accounts of the Corporation.

(a) Procedures. A Retail Electricity Supplier shall receive Alternative Compliance Credits from the Department, subject to the following:

1. The quantity of Credits, specified in MWhs, that can be applied to its obligations under 225 CMR 16.~~06~~07(1) shall be determined by calculating the ratio of the total of ACPs paid for the Compliance Year to the ACP Rate for that Compliance Year.

2. The ACP Rate for the APS Minimum Standard shall be $20 per MWh for Compliance Year 2009. For each subsequent Compliance Year, the Department shall publish the ACP Rate by January ~~31st~~31st of the Compliance Year. The ACP Rate shall be equal to the previous year's ACP Rate adjusted up or down according to the previous year's Consumer Price Index.

3. The Retail Electricity Supplier shall include with its Annual Compliance Filing copies of any ACP receipt(s) for ACPs made to the Massachusetts Clean Energy Technology Center during the Compliance Year.

(b) Use of Funds. The Department shall oversee the use of ACP funds by Massachusetts Clean Energy Technology Center, so as to further the commercial development of Alternative Generation.

16.~~08~~09: Annual Compliance Filings for Retail Electricity Suppliers

(1) Date of Annual Compliance Filing. For each Compliance Year, the Retail Electricity Supplier annually shall file an annual Compliance Filing with the Department no later than the first day of July, or the first Business Day thereafter, of the subsequent Compliance Year.

(2) Contents of Annual Compliance Filing. For each Retail Electricity Product, the Filing shall document compliance with the provisions of 225 CMR 16.~~06~~07 and 16.~~07~~08 to the satisfaction of the Department and shall include, but not be limited to, the following:

(a) Total Electrical Energy Sales to End-use Customers. Documentation of the total MWhs of electrical energy allocated by the Retail Electricity Supplier to End-use Customers in the Compliance Year. Such allocation is defined in 225 CMR 16.~~08~~09(2)(a) as the total quantity of the Supplier's Certificates Obligation that the Supplier correctly allocated or should have allocated to all of the Supplier's Massachusetts retail subaccounts in the NEPOOL GIS, in compliance with all relevant provisions of Part 4 of the NEPOOL GIS Operating Rules.

(b) Electrical Energy Sales to End-use Customers by Product. Documentation of the total MWhs of each Retail Electricity Product allocated to End-use Customers in the Compliance Year, verified by an independent third party satisfactory to the Department,

consistent with the Guidelines. Such allocation is defined in 225 CMR 16.~~08~~09(2)(b) as the quantity of the Supplier's Certificates Obligation that the Supplier correctly allocated or should have allocated to each of the Supplier's Massachusetts retail subaccounts at the NEPOOL GIS, in compliance with all relevant provisions of Part 4 of the NEPOOL GIS Operating Rules. The Department shall keep product information confidential to the extent permitted by law.

(c) Attributes Allocated from the Compliance Year. Documentation of the total MWhs of each Retail Electricity Product allocated to End-use Customers that were derived from both APS Alternative Generation during the Compliance Year, and which may include electrical energy generated on End-use Customers' sides of retail meters in the ISO-NE Control Area or by Off-grid Generation Units in Massachusetts in the Compliance Year, as follows:

1. For electrical energy transactions included in the ISO-NE Settlement Market System, the Compliance Filings shall include documentation from the NEPOOL GIS administrator of the Retail Electricity Supplier's ownership of GIS Certificates representing APS Alternative Generation during the Compliance Year.

2. For electrical energy transactions not included in the ISO-NE Settlement Market System, but for which the Retail Electricity Supplier has secured GIS Certificates from the NEPOOL GIS , the Compliance Filings shall include documentation from the NEPOOL GIS of the Retail Electricity Supplier's ownership of GIS Certificates representing APS Alternative Generation during the Compliance Year.

(d) Attributes Allocated from Banked Compliance. Allocation by Retail Electricity Product of any quantity of Attributes banked from one or both of the two previous years pursuant to 225 CMR 16.~~07~~08(2) that are used to demonstrate compliance in the current Compliance Year;

(e) Alternative Compliance Credits. Allocation by Retail Electricity Product of any Alternative Compliance Credits claimed pursuant to 225 CMR 16.~~07~~08(3), along with a copy of any Alternative Compliance Payment receipt(s);

(f) Attributes Banked for Future Compliance. Calculation of the quantity of any Attributes from APS Alternative Generation that the Retail Electricity Supplier anticipates claiming for purposes of Banked Compliance in subsequent years under the Banked Compliance provisions of 225 CMR 16.~~07~~08(2); and

(g) Exempt Contracts under Minimum Standard. Identification of any contract for a specific term of years that was executed before January 1, 2009, and its terms including but not limited to, the execution and expiration dates of the contract and the annual volume of electrical energy supplied.

16.~~09~~10: Reporting Requirements

(1) Certification. Any person required by 225 CMR 16.00 to submit documentation to the

Department shall provide:

(a) the person's name, title and business address;

(b) the person's authority to certify and submit the documentation to the Department; and

(c) the following certification: "I hereby certify, under the pains and penalties of perjury, that I have personally examined and am familiar with the information submitted herein and based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties, both civil and criminal, for submitting false information, including possible fines and imprisonment."

(2) Annual Alternative Energy Resource Report. The Department shall produce an annual report that summarizes information submitted to the Department by Retail Electric Suppliers in the Annual Compliance Filing submitted to the Department pursuant to 225 CMR 16.~~08~~09(2).

(3) Identification of APS Alternative Generation Units. The Department shall inform the NEPOOL GIS administrator which Generation Units should be designated as APS Alternative Generation Units pursuant to 225 CMR 16.00.

16.~~10~~11: Inspection

(1) Document Inspection. The Department may audit the accuracy of all information submitted pursuant to 225 CMR 16.00. The Department may request and obtain from any Owner or Operator of an APS Alternative Generation Unit and any Retail Electricity Supplier information that the Department determines necessary to monitor compliance with and enforcement of 225 CMR 16.00.

(2) Audit and Site Inspection. Upon reasonable notice to a Retail Electricity Supplier or APS Alternative Generation Unit Owner or Operator, the Department may conduct audits, which may include inspection and copying of records and/or site visits to an APS Alternative Generation Unit or a Retail Electricity Supplier's facilities, including, but not limited to, all files and documents that the Department determines are related to compliance with 225 CMR 16.00.

16.~~11~~12: Non-compliance

Any Retail Electricity Supplier or Owner or Operator of a APS Alternative Generation Unit that fails to comply with the requirements of 225 CMR 16.00 shall be subject to the following provisions:

(1) Notice of Non-compliance. A failure to comply with the requirements of 225 CMR 16.00 shall be determined by the Department. A written Notice of Non-compliance shall be prepared and delivered by the Department to any Retail Electricity Supplier or Owner or

Operator of a APS Alternative Generation Unit that fails to comply with the requirements of 225 CMR 16.00. The Notice of Non-compliance shall describe the Requirement(s) with which the Retail Electricity Supplier, Owner, or Operator failed to comply and the time period of such non-compliance.

(2) Publication of Notice of Non-compliance. A Notice of Non-compliance may be published on the Department's website and in any other media deemed appropriate by the Department. Such publication may remain posted until the Retail Electricity Supplier or Owner or Operator returns to compliance as determined by the Department.

(3) Planning Requirement. A Retail Electricity Supplier that fails to meet the requirements of 225 CMR 16.~~06~~07 during a Compliance Year shall submit a plan for achieving compliance for the subsequent three years. The plan shall be filed with the Department no later than the first day of September of the Compliance Year subsequent to the Compliance Year for which the Retail Electricity Supplier was out of compliance or such date as the Department may specify.

(4) Suspension or Revocation of License. The Department shall refer its findings of non-compliance to the Massachusetts Department of Public Utilities. A Retail Electricity Supplier that fails to comply with 225 CMR 16.00 may be subject to the Massachusetts Department of Public Utilities Licensure Action under 220 CMR 11.07(4)(c)1.

16.~~12~~13: Severability

If any provision of 225 CMR 16.00 is declared invalid, such invalidity shall not affect other provisions or applications that can be given effect without the invalid provision or application.

REGULATORY AUTHORITY

225 CMR 16.00: M.G.L. c. 25A, ~~§~~§§ 6 and 11F½.