



***Alternative Energy Portfolio Standard  
Straw Proposal***

***July 20, 2021***

# Historical Development of the APS

- Established in 2008 by the Massachusetts Green Communities Act of 2008 to incentivize:
  - Combined Heat and Power (CHP)
  - Flywheel Storage
  - Other technologies identified by DOER
- Revised by Chapter 251 of the Acts of 2014 to include Renewable Thermal technologies including:
  - Solar thermal
  - Air and Ground Source Heat Pumps
  - Biomass, Biogas, and Biofuels
- Revised by Chapter 188 of the Acts of 2016 to include:
  - Waste-to-Energy Thermal
  - Fuel Cells

# 2020 APS Minimum Standard Review

- October 30, 2020 – DOER released the [Alternative Energy Portfolio Standard Review](#) conducted by Daymark Energy LLC
- December 4, 2020 – DOER solicited stakeholder answers to [twelve key questions](#)
  - Roughly [100 sets of answers](#) were received and reviewed by DOER
- July 20, 2021 – DOER released a summary of findings from the [2020 APS Minimum Standard Review](#) which influences the development of the APS Straw Proposal

# 2021 APS Goals

- **Greenhouse Gas Emissions Reductions**
  - Prioritize the most greenhouse gas emission reductions for the least cost
- **Market Stability**
  - Support a balanced market to facilitate a stable incentive and drive technology adoption and market development
- **Complement Policies**
  - Design a policy that will support the Commonwealth's other clean heating and cooling policies

# Program Participation – Renewable Thermal

2017 - present

Technology	Small	Intermediate	Large	Total Applications
Air Source Heat Pump	2,082	17	1	<b>2,100</b>
Ground Source Heat Pump	334	4	1	<b>339</b>
Solar Thermal	608	9	0	<b>617</b>
Wood Chips Biomass	N/A	11	1	<b>12</b>
Wood Pellet Biomass	N/A	77	1	<b>78</b>
<b>Total</b>	<b>3,024</b>	<b>118</b>	<b>23</b>	<b>3,165</b>

Capacity (MW equivalent)	
Air Source Heat Pump	17.957
Ground Source Heat Pump	6.520
Solar Thermal	0.465
Wood Chips Biomass	1.884
Wood Pellet Biomass	3.311
<b>Total</b>	<b>38.025</b>

# Program Participation – Liquid Biofuels

Year	Quarter	Total Reported Fuel Sales	Total Eligible Liquid Biofuel Sales	Aggregate Blend Level
2018	Q1	9,948,983	1,651,838	17%
2018	Q2	8,008,994	1,574,508	20%
2018	Q3	4,701,244	1,237,263	26%
2018	Q4	22,685,518	4,797,677	21%
2019	Q1	37,075,443	6,784,794	18%
2019	Q2	12,952,792	2,432,858	19%
2019	Q3	7,740,226	1,650,349	21%
2019	Q4	38,591,005	6,952,285	18%
2020	Q1	55,807,395	10,188,936	18%
2020	Q2	23,678,490	4,208,506	18%
2020	Q3	8,033,933	1,498,621	19%
2020	Q4	36,451,701	6,597,211	18%
<b>Total</b>		<b>265,675,722</b>	<b>49,574,846</b>	<b>19%</b>

# Program Participation – Woody Biomass

Year	Wood Pellets (tons)	Dry Wood Chips (tons)
2017	186.88	1,258.80
2018	459.33	422.00
2019	640.72	0.00
2020	616.86	229.68
<b>Total</b>	<b>1,903.79</b>	<b>1,910.48</b>

# Program Participation – CHP, Fuel Cells, etc.

2009 - present

Technology and Resource	Generation Units	Capacity (MW)
Flywheel Storage	2	3.000
CHP - Natural Gas	96	499.888
CHP - Woody Biomass	2	0.709
CHP - Digester Gas	2	0.420
CHP - Natural & Digester Gas	2	2.300
Waste-to-Energy Thermal	2	0.861
Natural Gas Fuel Cell	19	8.654
<b>Total</b>	<b>125</b>	<b>515.832</b>



# Proposed Changes

# Minimum Standard

Beginning in 2023, a one time increase of 2% will be implemented, while the annual 0.25% increase will remain in place.

Compliance Year	Current Cumulative Minimum Percentage	Proposed Cumulative Minimum Percentage
2021	5.25%	5.25%
2022	5.50%	5.50%
2023	5.75%	7.50%
2024	6.00%	7.75%
2025	6.25%	8.00%
2026	6.50%	8.25%
2027	6.75%	8.50%
2028	7.00%	8.75%
2029	7.25%	9.00%
2030	7.50%	9.25%

# ACP

Beginning in 2023, the APS ACP will be increased to align with the RPS Class I ACP (\$40) and will remain constant over time.

Year	RPS ACP	Existing APS ACP*	Proposed APS ACP
2021	\$60.00	\$23.80	\$23.80
2022	\$50.00	\$24.28	\$24.28
2023	\$40.00	\$24.76	\$40.00
2024	\$40.00	\$25.26	\$40.00
2025	\$40.00	\$25.76	\$40.00
2026	\$40.00	\$26.28	\$40.00
2027	\$40.00	\$26.80	\$40.00
2028	\$40.00	\$27.34	\$40.00
2029	\$40.00	\$27.89	\$40.00
2030	\$40.00	\$28.44	\$40.00

\*Assuming a 2% inflation rate

# APS Eligible Technologies

Remove the following technologies from eligibility:

- Deep Geothermal Heat Exchange
- Solar Hot Air
- Compost Heat Exchange System

All remaining technologies will remain eligible in some capacity but may be subject to changes in eligibility criteria.

# Natural Gas Phase Down

Effective in 2023, qualified Generation Units utilizing natural gas (CHP and Fuel Cells) will have the following factors applied to their generation:

Year	AEC per MWH Generated
2023	0.7
2024	0.6
2025	0.5
2026	0.4
2027	0.3
2028	0.2
2029	0.1
2030	0.0

*CHP systems utilizing a renewable fuel will not be subject to the phase down.*

# Small Air and Ground Source Heat Pump Eligibility

- Eligibility criteria relating to system design will be moved to guideline to provide greater flexibility
- Applicants will be required to complete and submit a heat load calculation/design submittal
  - Per the design submittal, the system must provide full displacement
  - Systems which receive a MassSave incentive will not be eligible for the APS

# Intermediate and Large Renewable Thermal

- **DOER is soliciting feedback from stakeholders on potential metering schemes for intermediate and large Generation Units**
- Metering schemes must calculate Useful Thermal Energy and include the ability to net out:
  - Parasitic load and grid electricity
  - All cooling energy
  - Any heating energy from heat recovery

# Woody Biomass

- The APS will align with the RPS on:
  - Eligible feedstocks and definitions
  - The timeframe of GHG accounting (20 years)
- The provision which requires 30% of eligible woody biomass feedstocks come from *Forest Derived Residues, Forest-Derived Thinnings, Forest Salvage, or Residues derived from wood products manufacturing consisting of Clean Wood* will be removed



# Liquid Biofuels

- The minimum blend percentage for all Eligible Liquid Biofuels will be increased to 20% (B20)
- **DOER is soliciting feedback from stakeholders on specific feedstocks for eligibility consideration**
- The number of available AECs under the Cap on the Available AECs for Biofuel Generation Units will be maintained relative to any Minimum Standard increase (see illustrative example)

	Existing	Proposed
Electric Load	46,000,000	46,000,000
Minimum Standard	5%	7%
Cap on Liquid Biofuels	20%	~14%
AECs Available for Biofuel Generation Units	460,000	460,000

# Renewable Thermal Size Classifications

- Existing size classifications:
  - Small
  - Intermediate
  - Large
- Proposed size classifications:
  - Non-metered
  - Metered
- **DOER is soliciting feedback from stakeholders on where the break between non-metered and metered systems should be set.**

# Multipliers

- One multiplier for solar hot water systems (regardless of the type of load served) will be established
- The pathway of Net Zero for ASHP and GSHP Generation Units to receive an additional multiplier of 2 will be replaced by a low Thermal Energy Demand Intensity (TEDI) pathway
  - The pathways of a HERS  $\leq 50$  and Passive House certification will remain as options
- Existing multipliers across all technologies will be reviewed
- **DOER is soliciting feedback from stakeholders on multiplier values along with any supporting financial analyses.**

# Next Steps

**DOER will hold a virtual briefing on the APS Straw Proposal on July 27, 2021, from 11am – 12pm. Please register for the webinar [here](#).**

DOER is seeking public comment on the entirety of APS Straw Proposal, but doer encourages stakeholders to address specific areas of interest to DOER, as indicated in the straw proposal. Written comments will be accepted until 5 PM on August 20, 2021.

DOER highly encourages written comments be submitted electronically to DOER.APS@mass.gov. Please include “APS Straw Proposal Comments” in the subject line. Written comments may also be submitted via mail to the Department of Energy Resources, 100 Cambridge Street, Suite 1020, Boston, MA 02114, attention Darchelle Petion.

**If you have any questions on these updates, please contact  
DOER.APS@mass.gov**