MassDEP Clean Heat Standard (CHS)
Draft Framework
For Stakeholder Comment Only
November 2023

MassDEP is publishing the attached draft framework to update stakeholders on MassDEP's progress on detailed CHS program design, and to assist stakeholders wishing to comment on program design before MassDEP proposes regulations. All aspects of program design are open for comment. MassDEP will hold stakeholder meetings this fall, and requests written comment on the draft framework no later than December 21. 2023. Additional background is available on MassDEP's CHS web page: https://www.mass.gov/info-details/massachusetts-clean-heat-standard.

The draft framework builds on the CHS discussion document that MassDEP published in April 2023 and oral and written stakeholder comment received over the spring and summer. Key program design topics introduced in the discussion document are addressed, including:

- Topic #1 – Setting the Standard: The draft framework describes a standard that includes separate requirements for "full electrification" conversions (including a low-income "carve out"), and for annual emission reductions from using clean heat. The full electrification standard phases in gradually over time, starting at a level consistent with the current pace of heat pump deployment in Massachusetts.
- Topic #2 – Regulated Heating Energy Suppliers: The draft framework includes annual compliance obligations for suppliers of natural gas, heating oil, propane, and electricity. The electricity obligation starts small but increases over time as more and more customers electrify.
- Topic #3 – Credit Generation: The draft framework limits crediting to electricity and liquid biofuels at program startup, with a scheduled 2028 program review to evaluate revising eligibility based on specific criteria.
- Topic #4 – Compliance Flexibility and Revenue: The draft framework includes credit banking and an alternative compliance payment option with revenue dedicated to supporting future clean heat projects. A "just transition fee" on the initial sale of certain credits is included to support equitable outcomes.

MassDEP has posted the following additional documents on the CHS web page:

- Discussion draft regulatory language for an "early action" full electrification voluntary registration program. Written comments on this document are also requested by December 21.
- A FAQ document addressing basic questions about program design. MassDEP anticipates updating this document regularly in response to stakeholder questions.
- Comments and a summary covering comments received between May 10 and September 1.

I. Setting the Standards. Standards would be established to require annual emissions reductions while ensuring ongoing progress toward full electrification of buildings.

A. To ensure that emissions are reduced over time through ongoing use of clean heat, the program would include a requirement to document emissions reductions each year.

1. The emission reduction standard would be set to require reductions equivalent to an additional 1 million metric tons (MMT) of GHG emissions each year from 2026 through 2050 (i.e., totaling 1 MMT in 2026, 2 MMT in 2027 . . . 24 MMT in 2049). [i]

B. To ensure progress on electrification, the program would also include a requirement to complete a specified number of "full electrification" residential projects each year.[ii]

1. The full electrification standard would be 20,000 residences in 2026, increasing by 20,000 per year to reach 100,000 in 2030 and every later year.[iii]

2. To ensure equitable access to affordable clean heat, the regulations would include an "equity carve out" requirement that 25% of the full electrification standard be met by projects that serve customers who are eligible for low-income discount electricity rates. [iv]

Table 1. Annual standards, as statewide totals.

	2026	2027	2028	2029	2030	2035	2040	2045
Full electrification (number of projects)	20,000	40,000	60,000	80,000	100,000	100,000	100,000	100,000
Low income carve out	5,000	10,000	15,000	20,000	25,000	25,000	25,000	25,000
Emission reduction (metric tons)	1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	10,000,000	15,000,000	20,000,000

C. The standards would be inclusive of clean heat supported by other programs, such as federal tax credits. In other words, all clean heat that meets program requirements would count toward achievement of the standards regardless of whether it is supported by other programs.

II. Regulated Heating Energy Suppliers. The regulations would require retail sellers of natural gas, heating oil, propane, and electricity to demonstrate compliance each year.

A. The requirements for electricity sellers would be set in line with current building electrification programs (i.e., Mass Save) in the early years of implementation, and then increase gradually to ensure long-term viability of the standard as fuel providers' customer base declines due to electrification.[v]

1. The full electrification compliance obligations for retail sellers of electricity (including municipal electric utilities) would initially be set at a level not exceeding levels consistent with electric energy efficiency three-year plans, such as for example 16,000 full conversions per year.

2. Between 2027 and 2040, the full electrification obligation on electricity sellers would increase annually by 6,000 per year to reach 100% of the compliance obligation in 2040.

3. The annual emission reduction standard would phase in for electricity sellers after 2030, increasing from 1,500,000 MT in 2031 to the full obligation of 15,000,000 MT in 2040.

4. The compliance obligations for electricity sellers would be apportioned based on projected retail electricity sales. For example, assuming statewide electricity sales of 90,000,000 MWh in 2035, then the standards for that year would be (70,000/90,000,000 =) 0.000808511 full electrification project credits and (7,500,000/90,000,000 =) 0.095744681 MT of emission reduction credits per MWh of sales.

Table 2. Requirements for a retail electricity seller with 10,000 customers, assuming 6 MWh annual consumption per customer.

	2026	2027	2028	2029	2030	2035	2040	2045
Full electrification standard (number)	16	22	28	34	40	47	55	48
Low income carve out (number)	4	6	7	9	10	12	14	12
Emission reduction standard (MT)	0	0	0	0	0	4167	6818	8000

B. The remaining compliance obligations would be apportioned to natural gas, heating oil, and propane suppliers based on their reported carbon dioxide emissions for the year. For example, 2027 building sector emissions may be approximately 23 MMT, and the standard could require 40,000 full electrification projects. If, in that year, the total full conversion requirement on electricity sellers was 22,000 conversions, then natural gas, heating oil, and propane suppliers would be required to document completion of an additional 18,000 full electrification projects. Therefore, the full electrification standard for these

heating energy suppliers would be 18,000/23 MMT or 0.0007826 projects per MT of emissions. In other words, each supplier would calculate their electrification requirement by multiplying 0.0007826 times their emissions. A similar process would be used to determine the annual emissions reduction requirement, which could be met through biofuel blending.

Table 3. Requirements for an example fuel seller with 10,000 customers, assuming 5 MT annual emissions per customer.

	2026	2027	2028	2029	2030	2035	2040	2045
Full electrification standard (number)	8	39	73	110	150	100	0	0
Low income carve out (number)	2	10	18	27	38	25	0	0
Emission reduction standard (MT)	2083	4348	6818	9524	12500	8333	0	0
(As a percent of estimated emissions)	4%	9%	14%	19%	25%	17%		

C. Credit for projects that are completed under Mass Save and comply with all CHS eligibility requirements would be assigned to retail natural gas or electricity sellers in proportion to their compliance obligations.

D. Specific numerical standards such as those presented above would be established in the regulation for every year, but adjustment mechanisms would be included to address variability and uncertainty.

1. The regulation would establish a process for weather normalizing annual emission reduction credit values for electrification projects. (See Section IV.E.)

2. Required program reviews would be used to recalibrate the general requirements, for example if the pace of building sector emission reductions departs significantly from the assumptions used to derive the annual compliance requirements.

III. Credit Generation. Compliance would be demonstrated using Clean Heat Credits (CHCs or "checks"). Regulated energy suppliers would obtain CHCs by implementing clean heat themselves or purchasing credits from third parties, such as heat pump installers.

A. There would be two separate types of credits corresponding to the two standards: full electrification credits and emission reduction credits. Full electrification credits would be generated one time for each electrification project (See III.C.1.), but emission reduction credits would be generated each year on an ongoing basis (See III.F.).

B. A voluntary early action registration program would be used to encourage early action by registering full electrification projects completed before the final program regulations are in place.

1. Early action crediting would be limited to residential full electrification projects that:

a) Install electric heat pumps capable of meeting 100% of the space heating needs of a residence; and

b) Remove all combustion space heating equipment or commit to limiting utilization of remaining combustion equipment to backup or emergency use. [vi]

2. Administrative support would be available to early action projects, with resources targeted toward registering equity carve out projects.

C. Pending further analysis during the first program review, only the following actions would be eligible for crediting:

1. Full electrification projects that meet the requirements for early action crediting would receive full electrification credits on installation and annual emission reduction credits annually beginning the first year of operation.

2. Hybrid systems that retain fossil backup would be eligible for annual emission reduction credits based on evidence of utilization for heating, such as electricity billing records showing a winter-peaking pattern.

3. Documented delivery of eligible liquid biofuels would earn annual emission reduction credits toward compliance obligations of heating oil suppliers.

D. The final regulation would include a requirement to consider expanding eligibility to other fuels in a required 2028 program review. Fuels would be evaluated based on the following considerations:

1. Lifecycle analysis of the greenhouse gas emissions associated with producing and utilizing the fuel, including the time frame of the assessment.

2. Detailed analysis of fuel availability, including the status and potential timeline for production projects and analysis of alternative uses of the fuel.

3. Any local air pollution impacts from production or combustion of the alternative fuel.

E. To avoid unnecessary complexity and redundancy with the Mass Save program, weatherization and energy efficiency measures would not be eligible to earn CHCs.

F. Emission reduction crediting would be based on the following general principles:

1. Substituting clean heat for combustion in a single residence would be credited for an emission reduction of 5 MT per year, regardless of the size of the residence or whether it was an apartment or single-family home.[vii]

2. Heat pump systems at residences that do not meet the full electrification standard but are used for heating throughout a residence would be credited for an emission reduction of 2.5 MT per year.

3. Non-residential commercial projects would receive emission reduction credits based on demonstrated implementation of clean heat and emission reductions. Crediting would be consistent with methods used by the Massachusetts Department of Energy Resources (DOER) or MassDEP's greenhouse gas emissions reporting regulation for facilities.

4. Eligible waste-based liquid biofuels would be credited based on the assumed avoidance of all emissions from combustion of an equivalent quantity of heating oil. Other liquid biofuels eligible for the federal Renewable Fuel Standard would receive half credit through 2030 only. [viii]

G. Credits would include information necessary to address equity, such as a low-income identifier and project locations.

H. Presumptive ownership of any credits would be clearly specified in the regulation.

1. For electrification projects, ownership of credits would reside with the property owner unless and until re-assigned by the property owner to another owner. For example, MassDEP expects that property owners would normally assign full electrification credits to heat pump installers or other intermediaries and that these entities would reflect the value of the credits in prices offered for their services.

2. For blended fuels delivered by companies with compliance obligations, credits would be assigned to the company delivering the fuel.

I. MassDEP would develop and implement verification measures that draw on experience with existing programs such as DOER's Alternative Portfolio Standard (APS) and Mass Save to ensure credit integrity while minimizing the administrative burden of verification.

J. MassDEP would contract for the development and hosting of an electronic Clean Heat and Emissions Tracking System to provide for efficient program implementation.

IV. Compliance Flexibility and Revenue. Several program elements, including the use of marketable credits for compliance, would provide flexibility for regulated energy suppliers and offer opportunities for using revenue to ensure equitable outcomes.

A. Banking of full electrification credits for use in future compliance years would be allowed without limit. In combination with the gradual phase in schedule described in Section I.A, this would ensure an adequate supply of credits in the

early years of the program and support development of a durable and liquid market for credits.

B. Compliance through alternative compliance payments (ACPs) would also be allowed without limit, in the following amounts:

1. $6,000 per full conversion in 2026, increasing by $1,000 per year until reaching $10,000 per year in 2030.

2. For each low-income full conversion, the ACP amount would be doubled (i.e., $12,000 rising to $20,000).

3. For each metric ton of avoided emissions, $190.[ix]

C. ACP revenue would primarily be dedicated toward contracting for additional clean heat (and CHCs) in future years, with all ACP funds resulting from the low-income carve out dedicated to future low-income full electrification projects.[x]

D. A just transition fee of 10% of the annual full electrification credit ACP value would be required for the first transfer of each full electrification credit that is not eligible for the equity carve out, with funds assisting low-income consumers during the clean heat transition.

E. To provide compliance flexibility in years when colder weather drives significantly higher emissions, a credit multiplier would be used in assessing compliance obligations after particularly cold winters. In other words, the value of annual emission reduction credits resulting from electrification projects would be weather normalized in advance of the relevant compliance deadline to reflect the fact that electrification avoids more emissions during colder winters.

F. MassDEP would also consider options for providing additional support to low-income households when cold weather or high energy prices result in abnormally high home heating costs. Such options could include the use of ACP or just transition fee revenue, other MassDEP revenue, or programs implemented with other Massachusetts agencies.

G. Program reviews would be required in 2028 and every five years thereafter to address all aspects of program design and implementation.

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[i] Building sector emissions have recently been in the range of 24 MMT per year, so reductions of 1 MMT per year over the 2026 – 2050 time period would reduce emissions to near zero in 2050. Reducing emissions by 5 MMT over the 2025-2030 time period would also be consistent with the Massachusetts Clean Energy and Climate Plan for 2025 and 2030 (Table ES.2). Also see Section II.D.2 for discussion of the potential need to regularly re-calibrate this target and Section IV.E for discussion of weather normalization of credit values.

[ii] See Section III.B and C for discussion of the "full electrification" concept.

[iii] The example of 100,000 full electrification projects was presented in the spring 2023 CHS stakeholder discussion document as the pace of electrification necessary to achieve required emissions reductions by 2050.
[iv] As discussed in Section IV, the ACP rate for low-income conversions would be doubled. Therefore, a 25% carve out would correspond to 40% of the maximum economic value of the full electrification standard.
[v] For discussion of including electricity sellers in the standard, see the following documents posted on the CHS web site: *2025/2030 CECP, Appendix B*, p. 59 and *Memo on Obligated Entities*.
[vi] The commitment approach is currently used under the Mass Save program.
[vii] 5 MT is a rough estimate of the fossil fuel emissions resulting from heating a typical Massachusetts residence. Larger residences normally emit more than 5 MT per year, but providing additional credit for electrifying larger residences would not be equitable because larger residences are normally owned by higher-income individuals.
[viii] The Massachusetts Alternative Portfolio Standard program currently limits eligibility to waste-based biofuels. Discounting or limiting crediting for other biofuels would be consistent with this precedent and with US EPA analysis of indirect emissions from biofuel production. Biofuel eligibility would be reconsidered in the 2028 program review.
[ix] The $190/MT would apply to the reduction requirement, not the full amount of emissions. Therefore, this would not be equivalent to a "carbon price" on emissions of $190. $190 reflects a recent US EPA estimate and could be revised during program reviews.
[x] The purchase price of these CHCs could exceed the ACP rate, for example as might be needed to support full electrification at a residence that requires insulation or electric panel upgrades.