

**MassDEP Clean Heat Standard (CHS)  
Stakeholder Process  
Frequently Asked Questions (FAQ)  
Version 1.4 (April 2024)**

The purpose of this document is to assist stakeholders participating in MassDEP’s Clean Heat Standard (CHS) stakeholder process. MassDEP is considering proposing CHS regulations consistent with the information provided below and welcomes comments on all aspects of program development. MassDEP intends to revise this document during the ongoing stakeholder process in response to stakeholder questions; such revisions may include additional content or revisions to the information provided below. Questions may be submitted at any time to [climate.strategies@mass.gov](mailto:climate.strategies@mass.gov). Additional background on the CHS stakeholder process is available on MassDEP’s CHS web page: <https://www.mass.gov/info-details/massachusetts-clean-heat-standard>.

This version is an update from version 1.3, which was published in March 2024. New or revised material is marked with an asterisk. Note that “Q0” lists several areas where MassDEP is considering particular options for addressing stakeholder comments.

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**Q0. Is MassDEP considering any particular changes to the draft framework for potential inclusion in proposed Clean Heat Standard (CHS) regulations?** No final decisions have been made regarding the content of proposed CHS regulations and all stakeholder comments are currently under consideration. MassDEP has identified several specific potential changes based on stakeholder input and ongoing internal analysis and welcomes additional comment on these options:

- Adjust the annual rate of increase of the emission reduction standard so that it reaches 4 MMT by 2030 (instead of 5 MMT) and reduce the per-residence crediting rate for heat pumps from 5.0 MT to 4.0 MT for full electrification projects and 2.5 MT to 2.0 MT for other heat pumps. The purpose of this change would be to acknowledge stakeholder comments that the CHS does not address all sources of emissions from buildings and residences. It could also better accommodate the possible inclusion of water heating crediting by “leaving room” for residential water heating crediting within the crediting scheme. (See section I.A.1. and III.F.1. of the draft framework and Q23 and Q35 below.)
- Hold the annual emission reduction standard constant at 4.0 MMT after 2030 and limit emission reduction credit generation from heat pumps to no more than five years after initial registration for any clean heat project. The purpose of this change would be to ensure economic sustainability over the long term. The draft framework creates the expectation that every heat pump in the Commonwealth will be eligible to earn CHCs in every year until 2050. This is not likely to be necessary to ensure ongoing use of most heat pumps and has the potential to lead to increasing program costs in the later years of program implementation. If future program analysis suggests that a longer time period is desirable the five-year limit could be extended. The purpose of this change would be to better target incentives in each year to support operation of newer installations without reducing the total number of heat pumps eligible for crediting by 2050. (See table 1 of the draft framework.)
- Delay the emission reduction credit holding requirement for electricity sellers from 2031 until 2035. This change would be responsive to stakeholder comments addressing the potential regulatory burden on electricity sellers. The 2035 timeframe would allow for two program reviews (2028 and 2033) to reconsider the advantages and disadvantages of requiring electricity sellers to hold emission reduction credits. (See section II.A.3. of the draft framework and Q20 and Q36 below.) Electricity sellers would still be required to hold full electrification credits.
- Refine the applicability of the just transition fee. This change could help to address stakeholder comments regarding the use of geographic identifiers and the treatment of moderate-income households. For example, exempting smaller homes (based on real estate records) or homes located in disadvantaged communities could be a way to better target collection of the fee toward energy customers who are most able to contribute assistance to low-income households during the clean heat transition. (See Q37 below.)
- Do not allow emission reduction credit for renewable diesel or biodiesel blends above B20 unless they are derived from waste feedstocks. Biofuel blends up to B20 are in widespread use in

Massachusetts,<sup>1</sup> but higher blends and renewable diesel are not and could require investments in equipment adjustments, new transportation and storage pathways, etc. Because only waste-based biofuels will be credited after 2030, this change will help direct any capital investments related to biofuels toward options that can contribute to CHS compliance in the long term. This change would also help address stakeholder concerns regarding the lifecycle emissions impacts of biofuels without unduly interfering with existing industry efforts to reduce emissions from heating oil combustion. (See Q25 below.)

- Better align the CHS with Mass Save. MassDEP is closely following development of the 2025 – 2027 three-year plans and is committed to ensuring that CHS implementation is fully compatible with Mass Save implementation during that time period. Areas of potential change to the draft framework include:
  - Refining the full electrification crediting process for residences with access to Mass Save incentives.
  - Calibrating program stringency, ACP levels, and detailed requirements for full electrification with reference to the three-year plan process. (See section II.A. and C. of the draft framework.)
- Consider assigning default ownership of emission reduction credits from operation of heat pumps to electricity suppliers instead of homeowners. The draft framework suggests that information in monthly electric bills may be used to verify reliance on heat pumps for heating. Because electricity sellers already have access to this information and have experience with crediting programs, assigning credits to electricity sellers could greatly simplify program administration. It would also be consistent with crediting for liquid biofuels in that credits would accrue to the energy supplier. It would also create an incentive for electricity sellers to encourage heat pump usage, possibly by offering discounts or other rewards to customers that utilize their heat pumps. This could partially address stakeholder concerns about the operational costs of electric heat pumps. A variation on this idea could be to include a notice requirement and an “opt-out” option for consumers who wish to retain the rights to annual emission reduction CHCs associated with operating heat pumps in their homes.

**Q1. What is the clean heat standard and which entities will be regulated?** The CHS is a regulatory program that applies to and requires heating energy suppliers (suppliers of fuel oil, propane, natural gas, and electricity) to provide increasing amounts of clean heat over time. The Massachusetts CHS draft framework includes two purposes: 1) to demonstrate a certain amount of GHG emission reductions from the use of heat pumps and other clean heat annually; and 2) to install a certain number of electric heat pumps annually, in line with the pace of electrification identified in the Clean Energy and Climate Plans (CECPs) for the state. Heating energy suppliers will use clean heat credits (CHCs or “checks”) to track the implementation and use of clean heat and, ultimately, to demonstrate compliance with the regulatory requirements set in the CHS. To achieve the dual purposes of reducing emissions each year and setting the pace of heat pump installations, the draft framework describes a standard that takes the form of a requirement to hold a certain number and type of credits each year based on emissions or electricity sales.

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<sup>1</sup> See <https://massenergymarketers.org/bioheat-fuel/> and <https://mybioheat.com/facts/what-is-bioheat-fuel/> for more information about the “Bioheat” branded fuel that is in use in Massachusetts.

**Q2. What will qualify as clean heat under the CHS?** The CECPs identify the need for near-universal deployment of electric heat pumps in buildings in Massachusetts by 2050, so heat pumps will need to be the primary heating source that will be credited under the CHS. The draft framework identifies three criteria for evaluating options for eligibility under the CHS: greenhouse gas emissions, evaluated on a lifecycle basis; fuel availability in Massachusetts; and impacts on local air quality. The only fuels for which MassDEP has sufficient information at this time to make a positive determination under these criteria are liquid biofuels, with crop-based biofuels qualifying on a limited, temporary basis. The draft framework proposes a re-evaluation of fuel eligibility as part of a comprehensive program review scheduled for 2028.

**Q3. What are clean heat credits?** Because multiple technologies and fuels will be eligible in the CHS, clean heat credits (CHCs or “checks”) will be defined under the CHS and used to ‘count’ the implementation of clean heat in a uniform manner. The CHS regulation will specify how MassDEP will determine the quantity of CHCs that will be attributed to specific qualifying clean heat. The draft framework includes two types of CHCs: 1) full electrification CHCs associated with the installation of a new electric heat pump; and 2) emissions reductions CHCs associated with the use of clean heat (i.e., operating a heat pump, using biofuels blended with home heating oil). Full electrification CHCs will be used to show compliance with the full electrification requirement, and emission reduction CHCs will be used to show compliance with the emission reduction requirement. In other words, while full electrification projects will result in the issuance of emission reduction CHCs, the two types of credits are not fungible.

**Q4. How will a clean heat standard increase the use of clean heat in Massachusetts?** The CHS sets a regulatory requirement for heating energy suppliers to provide a certain amount of clean heat each year, demonstrated by generating or obtaining CHCs. This will increase the use of clean heat in several ways. First, heating energy suppliers that already provide clean heat services will be encouraged to expand these services to meet their own compliance obligations. Second, companies that do not meet their entire compliance obligations by providing clean heat to their own customers will be required to purchase credits from clean heat providers such as heat pump installers, homeowners who operate heat pumps, and suppliers of liquid biofuel blends. These purchases will make installing clean heat more profitable because each clean heat project will result in the creation of credits that can be sold to companies with compliance obligations. This will also result in lower prices for clean heat customers as installers compete for opportunities to sell credits. Finally, by setting a stringent regulatory standard that extends far into the future, the program will encourage long-term investments in clean heat technology, such as decisions to prioritize investments in equipment needed to service heat pumps vs. furnaces.

**Q5. What will homeowners be required to do under the CHS?** The CHS does not require homeowners to take any specific actions or make any changes to the fuels that they use.

**Q6. What will other building owners required to do under the CHS?** The CHS does not require building owners to take any specific actions.

**Q7. How will the CHS help homeowners and renters who want to make the transition to electric heat pumps?** The CHS will tend to increase opportunities for clean heat projects and lower the cost of installing electric heat pumps. This will occur because energy providers will be obligated to meet a “standard” for the number of clean heat projects achieved across their customer base or purchase credits representing other projects. Because they cannot force people to convert to clean heat, the only

way for them to ensure compliance is to motivate potential customers by lowering prices and providing other incentives, such as low-cost service contracts in exchange for the ability to claim CHCs associated with the project.<sup>2</sup>

**Q8. How will the program accommodate people and properties that are not ready to make the transition to clean heat?** The Massachusetts Global Warming Solutions Act requires deep emission reductions over the coming decades, which will require near-universal deployment of electric heat pumps for home heating. However, the standard does not require any particular person or property owner to make the transition at any particular time.

**Q9. How will the CHS ensure equitable outcomes?** The draft CHS includes several design elements to ensure that low-income households can benefit from the program:

- **Equity carve-out:** To ensure that low-income consumers receive the most beneficial clean heat (and air conditioning) services, 25% of the total full electrification requirement would be directed to projects that serve these households. Also, the maximum credit value for low-income projects would be set at double the value for other projects. Taken together, these requirements are equivalent to devoting 40% of the economic value of the full electrification credits to low-income households.
- **Just transition fee:** To collect revenue to support low-income consumers during the clean heat transition, a fee would be collected prior to the first transfer of credits. The fee would be waived for credits associated with low-income projects. Each of these components (the revenue and the fee waiver) would help favor equitable outcomes.
- **Alternative compliance payment (ACP) revenue:** ACP revenue, particularly from a failure to satisfy the equity carve-out requirement, could also be used to support equitable outcomes.

**Q10. How will the CHS support a balanced transition to clean heat?** Many building owners will transition to clean heat for its numerous benefits, such as the opportunity to add or improve cooling, the potential to reduce exposure to oil price volatility, the opportunity to install more efficient heating and cooling systems, and concern about the environment. The CHS program will include multiple elements to balance the transition to clean heat, such as flexibility options for energy suppliers subject to the regulation, program design components to ensure that low-income consumers benefit from clean heat, and comprehensive program reviews.

**Q11. What will heating energy suppliers be required to do under the CHS?** All heating energy suppliers will need to generate or obtain a certain quantity of CHCs each year. Specific numerical requirements are presented in the draft framework, and MassDEP has posted a spreadsheet that allows users to see examples of compliance obligations based on estimated sales of electricity, natural gas, heating oil, and propane. All regulated heating fuel suppliers will have the option of complying entirely through the purchase of CHCs or by making alternative compliance payments, but other options may be available in some cases where companies can earn credits for deploying clean options to their own customers:

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<sup>2</sup>This approach builds on a successful program that requires automobile manufacturers to sell electric vehicles in Massachusetts. See [Survey of Credit-Based Policies](#), available on MassDEP CHS web page, p. 4: “The ZEV regulation is measured directly in terms of the success of the automakers in selling ZEVs to end-use customers, but the number and value of ZEV credits associated with any given vehicle sale, and how manufacturers shift the pricing of cars to reflect this transaction, and not visible.”

- **Heating oil (and propane) suppliers:** One option for earning emissions reductions CHCs is to deliver biofuels to customers in Massachusetts and report these deliveries to MassDEP as part of emissions reporting. Heating oil companies that install and service heat pumps can also earn credits towards their compliance obligation if their heat pump customers agree to allow them to apply the associated credits toward their compliance obligations. A preliminary MassDEP analysis suggests that as many as 25% of heating oil suppliers in Massachusetts already offer services to their customers applicable to heat pumps, such as installation of mini-split air conditioning units. Only a fraction of these companies explicitly offers heat pumps as a full alternative to fossil fuels at this time, but the prevalence of air conditioning services among heating oil providers shows the potential for this market segment to expand rapidly in response to a clean heat standard.
- **Natural gas suppliers:** Under the draft framework, natural gas providers would have access to credits associated with projects supported by the Mass Save program in addition to purchased credits.
- **Electricity suppliers:** Like natural gas suppliers, electricity sellers would have access to Mass Save credits. However, as the program evolves, electricity sellers are expected to comply mostly through credit purchases, similar to their compliance with MassDEP's existing Clean Energy Standard regulation.

**Q12. What do clean heat providers need to do under the CHS?** In general, the CHS will not include compliance obligations for clean heat suppliers (such as heat pump installers) unless they are subject to a compliance obligation as heating energy suppliers. However, clean heat providers will need to take certain steps to ensure that they can benefit from opportunities to sell CHCs.

- **Heat pump installers:** Heat pump installers (including mini-split, ground source geothermal, etc.) will need to adjust their pricing and contracting practices to take full advantage of the CHS. Under the draft framework, credits would presumptively be assigned to property owners. This is necessary to avoid disputes among contractors regarding the right to claim project credits, but it means that contractors wishing to earn CHCs will need to ensure that property owners re-assign CHCs resulting from the project to them.
- **Providers of eligible fuels:** Fuels used for CHS compliance will likely be blended with fossil fuels. Therefore, providers of qualifying fuels will need to retain documentation to support crediting, such as chain-of-custody shipping documents demonstrating delivery of eligible biofuels to customers in Massachusetts.
- **Energy efficiency contractors:** To limit program complexity, the draft program framework does not envision crediting energy efficiency measures directly. In other words, while efficiency is critically important for the clean energy transition, it is not considered a source of heat under the CHS. However, installing heat pumps in poorly insulated homes is inefficient, so contractors are strongly encouraged to explore options for combining energy efficiency services with heat pump installations.

**Q13. What will be the role of other market actors, such as credit aggregators?** The basic CHS program structure requires that clean heat companies sell credits and that heating energy suppliers buy them. As with other credits trading programs, there will be an important role for companies that can help facilitate the buying and selling of credits, either as “brokers” that help match buyers to sellers or as

“aggregators” that handle credit sales for a large number of projects. For example, the Massachusetts Department of Energy Resources maintains a list of aggregators that assist with registration and marketing of credits under their programs.

**Q14. Has MassDEP analyzed potential program impacts?** MassDEP will refine the program design in 2024. Analysis of potential program impacts will be one aspect of that program design work. Additionally, MassDEP will conduct program reviews starting in 2028, and at least every five years thereafter, to address all aspects of program design and implementation, including equity outcomes.

**Q15. Which standard do utilities that sell both electricity and natural gas need to meet?**

A utility that sells both electricity and natural gas would need to meet the standards for their retail sales of the megawatt-hours of electricity sold and the metric tons of emissions associated with the gas sold each year.

**\*Q16. What counts as “full electrification”?**

A residence that installs an air- or ground-source electric heat pump capable of meeting 100% of its space heating needs and either removes all combustion space heating equipment or commits to limiting utilization of remaining combustion equipment to backup or emergency use would be considered fully electrified. This includes residences converting from ‘hybrid’ heating systems with both electric and fossil fuel heating sources. Ground-source electric heat pumps include residences that connect to networked geothermal systems. A residence that has already received a full electrification credit in the past may not receive another full electrification credit (e.g., when replacing their heat pump at the end of its useful life).<sup>3</sup> MassDEP may consider expanding eligibility for full electrification credits to commercial buildings, but the framework does not currently include full electrification credits for commercial buildings. (These buildings may still be eligible ongoing emission reduction credits.)

**Q17. How will the CHS handle alternative fuels that could be blended into the existing fossil fuel pipeline system?**

Alternative fuels that could be blended into existing fossil fuel pipelines would not be eligible to receive credit under the CHS at the outset. See Q2 for the criteria and process MassDEP will use to evaluate eligibility for other options during the 2028 program review.

**Q18. Will partial or hybrid electrification qualify for credits?** Partial electrification would not be counted toward the full electrification standard, but would be eligible for emission reduction credits under the emission reduction standard based on verified use for heating. Detailed eligibility and verification requirements would be established in the CHS regulation.

**Q19. Which electricity sellers will be subject to the standard?** All retail electricity sellers that currently report emissions under 310 CMR 7.71 would be required to comply with the CHS, including investor-owned and municipal electric utilities and competitive electricity suppliers (including competitive suppliers with sales under municipal aggregation programs).<sup>4</sup>

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<sup>3</sup> For a detailed description of full electrification eligibility see the discussion draft early registration program <https://www.mass.gov/doc/discussion-draft-early-registration-program-regulation/download>

<sup>4</sup> For a list, see <https://www.mass.gov/doc/2020-summary-massachusetts-ghg-emissions-reports-for-retail-sellers-of-electricity/download>, table 4.



**Q20. What is the reason for including requirements for electricity suppliers?** Over the 2026 - 2050 time period, and particularly after 2040, electricity sellers are expected to have a stable customer base and an increasing fraction of the heating energy market. The main mechanism by which the CHS will reduce emissions is through strong and sustained support for electrification, and electricity suppliers are well-positioned to deliver this support. Including electricity suppliers will also reduce the regulatory burden on heating fuel suppliers compared to an option where heating fuel suppliers are fully responsible for meeting the statewide standard. To inform consideration of potential obligated entities, MassDEP considered information included in Appendix B of the Massachusetts Clean Energy and Climate Plan<sup>5</sup> for 2025 and 2030 and commissioned a technical memorandum titled “Options for Role of Electric Distribution Companies, Obligated Fuels, and Obligated Entities.”<sup>6</sup>

**Q21. Has MassDEP analyzed how electrification will change the number of consumers of each fossil fuel?** The use of a credit market will reduce costs but will also make it difficult to determine in advance the distribution of clean heat across various segments of the fossil fuel market. As MassDEP refines the program design in 2024, MassDEP will work to analyze projected program impacts, potentially including the rate at which the transition may vary across fuels (natural gas, heating oil, and propane). The 2028 program review will also provide opportunity for further analysis of this topic.

**Q22. Regarding the ACP, how would the full electrification requirement interact with the emission reduction requirement?** The full electrification and emission reduction requirements are separate and independent requirements that would be met with different credit types that could not be substituted for one another. Therefore, the required payment for an obligated entity that chooses to comply with both requirements through ACPs would be the sum of the required payments under each separate standard. This approach is used in other regulatory standards, such as the “CES” and “CES-E” components of MassDEP Clean Energy Standard program.<sup>7</sup>

**Q23. Is MassDEP considering expanding CHS crediting eligibility to include other categories of equipment, such as water heaters, dryers, and stoves?** The draft framework focuses on space heating because space heating accounts for the majority of building emissions; other equipment types are not addressed to limit program complexity. This is a topic that could be revisited during the 2028 program review.

**Q24. Is MassDEP considering adopting Mass Save’s detailed methodologies for calculating emissions reductions from clean heat?** The simplified methodology included in the draft framework is designed to limit program complexity in the early years of the program. The 2028 program review will provide an opportunity to consider whether additional detail could improve program outcomes without introducing too much administrative complexity.

**\*Q25. Why does the draft framework provide “half credit” to biofuels that are eligible for the Federal Renewable Fuel Standard (RFS) but not for the Massachusetts Alternative Portfolio Standard (APS)?** Fuels eligible for the RFS program include fuels that have been evaluated by the United States

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<sup>5</sup> Available at <https://www.mass.gov/doc/appendices-to-the-clean-energy-and-climate-plan-for-2025-and-2030/download>; see page 57.

<sup>6</sup> Available at <https://www.mass.gov/doc/memo-on-obligated-entities/download>.

<sup>7</sup> See <https://www.mass.gov/doc/rps-aps-2021-annual-compliance-reportexecutive-summaryfinal-11-28-13/download>, p. 7.

Environmental Protection Agency and determined to result in emission reductions of at least 50%.<sup>8</sup> In other words, the fuels have been determined to reduce emissions by at least half relative to similar petroleum-based fuels. Other programs, such as California’s Low Carbon Fuel Standard, utilize more detailed analysis, but they reach the same general conclusion that these fuels reduce emissions moderately.<sup>9</sup> The approach of providing “half credit” to all fuels in this category is intended to strike a balance between appropriately crediting biofuels and limiting program complexity.<sup>10</sup> Please note that the draft framework only includes crediting for these fuels through 2030, and that the 2028 program review will provide an opportunity to revisit the topic of biofuel crediting. Heating fuel supplier reporting regulations will allow MassDEP to monitor biofuel use for space heating in Massachusetts over time and provide data that can be considered during the 2028 program review.

**Q26. Please provide an example to illustrate how full electrification projects completed under Mass Save would be allocated among obligated entities.** The details of this approach are under development, but the general concept is as follows: If, for example, 10,000 full electrification projects were funded under Mass Save by electric utilities in a particular year, each retail electricity seller (excluding Municipal Light Plants) would have a fraction of the 10,000 projects credited toward their compliance obligation, with the fraction set in proportion to their electricity sales (excluding sales by Municipal Light Plants).<sup>11</sup>

**Q27. Please provide more information regarding the calculations used to derive the numerical standards included in the draft framework.** MassDEP has posted a spreadsheet showing the derivation of all numbers in the draft framework, along with a compliance calculator tool that heating energy suppliers can use instead of the 10,000-customer examples provided in the draft framework. In reviewing these spreadsheets, please note:

- An assumed rate of electricity load growth is being used to derive the numerical compliance factors that will be provided in the regulation for electricity sellers to use to calculate their compliance obligation. However, the example compliance obligation table does not include a corresponding adjustment to assumed average per-customer electric sales. MassDEP acknowledges that this results in an unrealistic projection that an individual electricity seller’s compliance obligation could decline over time. MassDEP will address this discrepancy in future analysis and is also providing a compliance calculator tool that stakeholders can use to consider alternative scenarios for how an electricity seller’s sales might change over time.
- Statewide totals are included in separate tables in the draft framework and can also be derived using the compliance calculator by entering assumed or projected statewide total heating energy sales for the different categories of energy supplier.

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<sup>8</sup> <https://www.epa.gov/renewable-fuel-standard-program/renewable-fuel-annual-standards>

<sup>9</sup> <https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities>

<sup>10</sup> As discussed in the 2050 CECP, crop-based biofuels can compete directly with food production and contribute to deforestation (see <https://www.mass.gov/doc/2050-clean-energy-and-climate-plan/download>, pp. 105-107). They also yield estimated emission reductions over an extended time period, not immediately. For example, Argonne National Laboratory evaluates land use impacts of increased biofuel production over a 30-year time period (see <https://publications.anl.gov/anlpubs/2021/10/171711.pdf>, p. 10 and 14).

<sup>11</sup> See <https://www.mass.gov/doc/310-cmr-775-massdep-response-to-public-comments-december-2017/download> for discussion of a similar provision in the Clean Energy Standard regulation.

**Q28. Has MassDEP considered the impacts of clean heat on the electric grid with regard to emissions and reliability of the electricity supply?** MassDEP and other Commonwealth agencies have several programs to ensure an adequate supply of clean electricity. The CHS concept, including the focus on electrification, was originally developed in the context of comprehensive analyses of the policies needed to comply with the Global Warming Solutions Act. MassDEP is not conducting further analysis of electricity reliability or emissions as part of the CHS development process.

**Q29. Why is MassDEP developing a Clean Heat Standard rather than using another policy tool?** The Massachusetts Clean Energy and Climate Plans and Clean Heat Commission have identified a Clean Heat Standard as an appropriate tool to reduce greenhouse gas emissions in the thermal sector.

**Q30. Why does the CHS require 25 MMT of emission reductions in 2050?** The CHS emission reduction requirement is set to put Massachusetts on a trajectory for the significant emissions reductions needed from the building sector as related to the Global Warming Solutions Act. Because of the simplifying assumptions used in assigning emission reductions to specific actions under the CHS and the inherent uncertainty in factors influencing future emissions, such as weather, the emission reduction requirement in the CHS does not match the building sector sublimits exactly. Periodic program reviews are included in the program and will provide regular opportunities to evaluate whether the emission reduction requirements need to be adjusted in later years of the program should building sector emissions deviate significantly from the assumptions used to establish the numerical standards (see Q27).

**Q31. Do heat pumps work in very cold weather?** There are heat pumps specifically designed for cold climates and MassDEP has included a provision in the draft voluntary early registration program that would ensure heat pumps receiving full electrification credits in the CHS meet the Cold Climate Air Source Heat Pump Specification published by the Northeast Energy Efficiency Partnership (NEEP).<sup>12</sup> More information about heat pumps generally is available on the Department of Energy Resources website at: <https://www.mass.gov/info-details/air-and-ground-source-heat-pumps>.

**Q32. How will revenue from ACPs be used?** Revenue from Alternative Compliance Payments (ACPs) could be dedicated toward contracting for additional clean heat in future years, with all ACP funds resulting from the low-income carve out dedicated to future low-income full electrification projects. MassDEP will continue to evaluate and refine options for effective uses of ACP funds as part of the CHS development process.

**Q33. What is the reason for regulating at the retail level vs. larger “wholesale” heating energy suppliers?** For heating oil and propane, only retail sellers are able to confirm that fuel was delivered for use in a building in Massachusetts. For electricity and natural gas, applying the standard at the retail level provides for a consistent approach across energy sources and will support development of a competitive market for CHCs with many buyers and sellers. In the case of retail sellers of electricity, MassDEP can also build on years of successful implementation of emissions reporting and credit holding requirements under 310 CMR 7.75.<sup>13</sup>

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<sup>12</sup> <https://neep.org/heating-electrification/ccashp-specification-product-list#Background>

<sup>13</sup> For example, the compliance rate under the credit holding requirements of 310 CMR 7.75 (Clean Energy Standard) has been approximately 99% on a MWh basis in each of the last several years.

**Q34. How will commercial and industrial clean heat be credited under the CHS?** The draft framework explains that non-residential commercial clean heat would be able to earn emission reduction CHCs that can be used to comply with the annual emission reduction standard. The general approach would be to credit commercial (and industrial) clean heat projects based on realized emission reductions relative to a modeled or measured baseline. MassDEP is collaborating with the Massachusetts Department of Energy Resources to ensure consistency with upcoming building energy use reporting requirements.<sup>14</sup> As discussed in Q16, MassDEP may also consider adding a commercial and industrial full electrification crediting program at a later date, such as after the 2028 program review.

**Q35. Will the CHS reduce emissions from residential water heating appliances?** As discussed in Q23 above, the draft framework does not include crediting for the installation or use of electric residential water heating appliances. However, the CHS could still have an indirect impact on water heater emissions over time. This may occur because consumers who have made the decision to electrify their heating systems may be more likely to choose other electric appliances in the future for the simple reason that they will have gained experience and familiarity with general concept of electrification. In the longer term, the transition to what the Massachusetts Department of Public Utilities refers to as “non-gas pipeline alternatives” for all of household energy needs may provide an additional incentive for consumers to choose electric water heaters.<sup>15</sup>

**Q36. What is the reason for basing equity crediting solely on eligibility for income-qualified electricity rates instead of using geographic identifiers or including moderate income consumers?** Basing equity crediting on eligibility for income-qualified electricity rates offers several advantages.<sup>16</sup> First, consistency with an established qualification process will ease program administrative burdens compared to a process that would require MassDEP to identify and verify incomes of moderate-income consumers. Second, it will deliver benefits to all low-income consumers regardless of location and avoid providing unnecessary incentives to wealthy consumers. Finally, it will ensure that the most valuable credits are targeted at consumers who are already eligible for favorable electricity rates that will reduce the operating costs of heat pumps.

**Q37. Why is it necessary to include two different types of crediting in the CHS (emissions reduction and full electrification)?** Each type of credit serves different purposes. Emission reduction credits are necessary to help ensure that the CHS is calibrated to require annual progress toward compliance with emissions limits established under the Global Warming Solutions Act. They also support emission reduction measures that occur on an ongoing basis, such as the operation of installed heat pumps and biofuel blending. On the other hand, full electrification credits ensure that heat pump installations occur at a pace consistent with the need to achieve near-universal deployment of heat pumps by 2050. They are needed because installing heat pumps requires a significant up-front investment that would not be directly supported by emission reduction credits.

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<sup>14</sup> <https://neep.org/blog/policy-tracker-massachusetts-continues-lead-climate-action>

<sup>15</sup> See Order 20-80, page 117: “the Department recognizes that the increasing number of gas customers leaving the gas system likely will result in higher rates for those customers remaining on the system.” Available at <https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/18297602>.

<sup>16</sup> For example applications, see <https://www.nationalgridus.com/Discount-Rate-App-MA> and <https://www.eversource.com/content/residential/account-billing/payment-assistance/discount-rate>.

**\*Q38. How will propane be treated in the CHS?** MassDEP's intent under the draft program framework is to treat propane similarly to heating oil. Under that approach, emissions from propane combustion would be included in fuel suppliers' compliance obligations but propane suppliers could earn emission reduction credits for blending certain biofuels. In general, such biofuels would be credited similarly to heating oil blends, where crediting would depend on the feedstock used to produce the fuel. However, because propane is not eligible for crediting under the RFS or APS, MassDEP may need to include additional reporting requirements to support credit generation beyond those that apply to heating oil that is eligible for crediting the RFS or APS.