The Massachusetts Clean Heat Commission Report:

Clean Heat Standard

Report Prepared For:

Massachusetts Heating Fuels Industry

The materials contained in this document are intended for public distribution.

January 5, 2023

MA Clean Energy and Climate Plan for 2050

The MA CECP was released on December 21, 2022 and provided a framework for the state to meet its climate goals

Framework
✓ 95% GHG reduction below 1990 levels for residential heating and cooling by 2050
✓ Convert 80% of homes to heat pumps (more than 2.8 million) by 2050
✓ A Declining emissions cap on heating fuels by 2023 with the Commission on Clean Heat regarding the cap structure and levels
✓ A Clean Heat Standard by 2024

Source: Diversified Energy Specialists Research & Analysis

MA Commission on Clean Heat Report

Governor Charlie Baker established the Commission on Clean Heat by executive order to establish recommendations to reduce greenhouse gas emissions from the building sector

Recommendations – November 30, 2022
✓ Clean Heat Standard
✓ Eliminate the APS program
✓ Analysis on phasing out new fossil fuel systems
✓ Building decarbonization clearinghouse
✓ Climate bank
✓ Workforce training and education
✓ Public outreach and awareness
✓ Building benchmarking

Source: Diversified Energy Specialists Research & Analysis

Emissions Standard Summary

The Vermont Clean Heat Standard is an example of what could be enacted in Massachusetts, New York, Maine and other Northeast states over the next few years

Characteristics	Summary
Summary	Emissions Standards provide value & incentive to emissions reduction, while not limiting or guaranteeing a decrease in emissions. However, the failure to reduce emissions will be costly.
Obligated Entities	Fossil Fuel wholesalers (in VT – MA has yet to determine which level of the heating oil supply chain will be obligated) or the first point of sale within the state for consumption. (Natural Gas Utilities, Propane, Kerosene, heating oil, and coal)
Compliance Obligation	"Annual requirements shall be expressed as a percent of each obligated party's contribution to the thermal sector's lifecycle CO2e emissions in the previous year with the annual percentages being the same for all parties." 26% below 2001 levels by 2025, 40% below 1990 levels by 2030, and 80% below 1990 levels by 2050. 1/3 of compliance must come from low-income residences.
Compliance Mechanisms	Direct delivery of eligible clean heat measures, the market purchase of clean heat credits, or payment to a statewide appointed default delivery agent.
Tradeable Credit	Yes. Eligible technologies will generate Clean Heat Credits, which can be used to meet compliance, can be banked for an unlimited number of years, or can be sold in the market to an obligated party. 'Early Action Credits' can be generated from 2023-2024 and used for compliance in 2025.
Carbon Intensity	Carbon intensity of fuels will be measured by the GREET model.
Eligible Technologies	Weatherization, sustainably sourced biofuels, RNG and advanced gasses, the installation of cold-climate air-source heat pumps and wood heating appliances, and solar thermal
GHG Reporting	Typically reported through a third party annually, along with proof of retired Clean Heat Credits
Baseline	The baseline year would be the year prior to implementation.
Industry Opportunity	This would be a fantastic short-term opportunity for retailers to generate credits from biofuels and make money. Long-term, this would hurt the obligated parties in the market, but that long-term pain can be alleviated with trading strategies.

Source: Diversified Energy Specialists Research & Analysis

Obligated Parties

The state will enforce a compliance obligation on the fossil fuel industry that will penalize a level of the supply chain if the overall greenhouse gas emissions are not reduced

Obligated Parties

- Regulated investor-owned gas utilities
- Fuel providers of delivered fuels, with the compliance obligation applied at the wholesale level or the first point of sale in MA (could also be applied at the retail level instead of the wholesale level – TBD in the rulemaking process)
- Propane wholesalers
- Fossil heat providers that are not any of the above listed parties, including competitive gas suppliers
- Electricity suppliers (Utilities), either on their own or together with other heating suppliers

“Other categories that may warrant consideration include”

- Large commercial properties above a set threshold of fuel usage (to prevent individual homeowners from an individual obligation)
- Municipalities, or municipal gas companies as obligated parties, perhaps with municipal electric companies having the option of creating and selling credits

Source: Diversified Energy Specialists Research & Analysis

Compliance Obligation

The obligated parties in the CHS will need to reduce their greenhouse gas emissions by either lowering the carbon intensity of their fuel or by selling less fuel

Compliance Obligation

- The compliance obligation will align with the goals set by the MA GWSA and the 2021 Climate Roadmap:
  - 29% below 1990 levels by 2025 (approximately 20% below 2020 levels)
  - 49% below 1990 levels by 2030 (approximately 40% below 2020 levels)
  - 75% below 1990 levels by 2040 (approximately 66% below 2020 levels)
  - 85% below 1990 levels by 2050 (approximately 76% below 2020 levels)

- The annual obligation increases will be linear. The GWSA outlines the MA economywide goals as:
  - 4% per year until 2025
  - 5% per year between 2025 and 2030
  - 3% per year from 2030 to 2050

Source: Diversified Energy Specialists Research & Analysis

Actions to Meet Compliance

An obligated party will have many options to meet their compliance obligation

Compliance

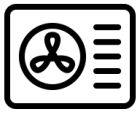
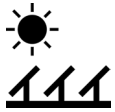
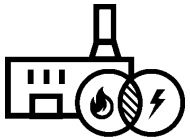
An obligated party may obtain and retire the obligated amount of clean heat credits annually through:

- Generating credits through the direct delivery of eligible clean heat measures
- Hiring contractors to install clean heat measures on its behalf
- Purchasing Clean Heat Credits on the open market
- Pay a third-party program administrator, who could deliver clean heat measures on behalf of multiple obligated parties
- Making a payment to assign emission reduction obligations to an appointed statewide “default delivery agent” designated by the lead agency implementing the CHS. The default delivery agent would be required to use the funds to deliver clean heat savings to consumers
- Paying an Alternative Compliance Payment (ACP) per clean heat credit needed to meet its obligation

Source: Diversified Energy Specialists Research & Analysis

Eligible Generating Technologies

The technologies listed have been proposed as eligible technologies in the Clean Heat Standard, with some technologies (in green) listed as potential technologies

					
Air-source Heat Pumps	**Geothermal Heat Pumps**	**Weatherization**	**Energy Efficiency**	**Solar Thermal**	**Clean District Energy** (CHP w/ renewables)
					
Demand-Side Efficiency (thermostat control during peak)	**Wood Pellets**	**Biodiesel**	**Renewable Diesel**	**Renewable Natural Gas**	**Clean Hydrogen**

Source: Diversified Energy Specialists Research & Analysis

Generating Parties

The generators of Clean Heat Credits will be the end user or the party that delivers the clean heat measure directly to the end user for use in Massachusetts

Generators

- Homeowner or Building Owner
  - The owner of the property or business that is being upgraded would be the default owner of clean heat credits generated from on-site projects.
  - "It is important to note that as a starting provision, ownership of clean heat credits should begin with the end-use customer whose fossil heat consumption has been reduced. That customer can decide whether to transfer the credits to the contractor, installer or fuel supplier who provided the clean heat services; or to sell them in the market; or to hold them for future use. In many, if not most, cases we can expect the provider of the service to contract with the customer for ownership of any credits and would likely offer an incentive payment or discount on the service provided.

- Distributors of delivered fuels (directly to end user in MA)
  - Biodiesel and renewable diesel retailers
  - Propane retailers
  - Renewable natural gas utilities

Source: Diversified Energy Specialists Research & Analysis

Credit System

Tradeable Clean Heat Credits

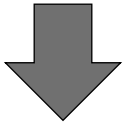
- The program will establish a system of tradable clean heat credits that may be earned by reducing greenhouse gas emissions through resources and projects qualified by the Clean Heat Standard.
- The underlying value of these credits shall be based on units of carbon dioxide emissions AVOIDED (1 Ton of CO2 avoided will equal 1 clean heat credit).
  - "A crediting system that focuses on counting tons of GHG reductions would ensure that emissions reductions are prioritized and quantified."
- The Commission will establish a process for the recognition, approval, and monitoring of the clean heat credits through an exchange.

Source: Diversified Energy Specialists Research & Analysis

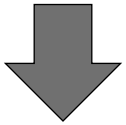
Clean Heat Credits

The value of a clean heat credit is based on the metric tons of carbon dioxide emissions reduced by a clean heat measure

1 Metric Ton of CO_2 = 1 Clean Heat Credit (CHC)



Fossil fuel wholesalers (or retailers – TBD) purchase credits in the market to meet their annual compliance obligation



Generator of credits (end user / retailer) receives the proceeds

Source: Diversified Energy Specialists Research & Analysis

Tiers, Caps & Carve-Outs

These market mechanisms would further complicate a Clean Heat Standard and only one was recommended by the Commission on Clean Heat

Tiers

- Long-term vs. short-term solutions
  - This would separate the program into two tiers, long-term (Tier 1) and short-term (Tier 2).
  - Tier 1 credits would include long-term solutions (weatherization, ASHP/GSHP installation, energy efficiency, solar thermal, etc.).
  - Tier 2 credits would include short-term solutions (delivered fuels).
  - Tier 1 credits would have a higher value and ACP than Tier 1 and a higher percentage of the obligation would have to be met with Tier 1 credits.
  - For example, if the obligation was 29% in 2025, the obligation could have to be met with 20% Tier 1 credits and the other 9% could be met with Tier 2 credits.

Caps

- Biofuels
  - A cap could be placed on the number of credits generated from biofuels, similar to the cap on biofuels in the MA APS program.
- Long-term vs. short-term solutions
  - A cap could be placed on the number of credits generated from short-term solutions. This would work with the tiered approach above, setting a cap on the number of Tier 2 (short-term) credits that could be used to meet the annual obligation.

Carve-Outs

- Environmental Justice
  - Similar to the VT CHS, which required 33% of retired credits to come from low- and moderate-income households on an annual basis, the MA CHS could require a certain percentage of retired credits to come from low-income households.
  - “The standard could be developed with an equity carve-out requiring that a progressive fraction of clean heat credits be acquired from measures in low- and moderate-income households. Alternatively, regulated parties could be awarded some credit bonus, reducing their overall obligation, if some equity threshold were reached.”

Source: Diversified Energy Specialists Research & Analysis

Other Design Components of Note

Regulatory Assistance Project Report – MA

- Retroactive generation
  - No mention of retroactive generation in this report
- Banking
  - Obligated parties will be able to purchase more credits than they are obligated on an annual basis and use those additional credits to meet their compliance obligation in future years
  - Any party that isn't obligated will not be able to bank credits, including generators
  - No mention of time constraints on banking
- Purchasing carbon offsets will not be an eligible action to meet compliance. Direct reductions from in-state homes and businesses are the only way to meet compliance
- Fuel Switching
  - Switching from propane, natural gas, or heating oil to another fossil technology will not generate credits or be considered a clean heat action
- Non-compliance
  - If an obligated party fails to obtain and retire the required number of Clean Heat Credits in a given year, they shall make a non-compliance payment at a per credit rate of three times the ACP
- Lifetime credit generation for installations of clean heat measures
  - The report discusses annual minting over a 15-year period for ASHP installations vs. forward minting in year 1

Source: Diversified Energy Specialists Research & Analysis

Clean Heat Credits by the Numbers

The obligation on each technology will be based on the metric tons of carbon dioxide emissions produced in the base year

Massachusetts Thermal Fossil Fuel CO_2 Emissions

- Massachusetts thermal fossil fuel GHG emissions in 2019 (CO_2):
  - Residential Natural Gas (29%) – 7.1M metric tons
  - Commercial Natural Gas (26%) – 6.5M metric tons
  - Industrial Natural Gas (10%) – 2.5M metric tons
  - Residential Fuel Oil & Propane (25%) – 6.1M metric tons
  - Commercial Fuel Oil & Propane (6%) – 1.4M metric tons
  - Industrial Fuel Oil & Propane (4%) – 0.9M metric tons
- In 2025 the obligation will be 29% below 1990 levels, which is approximately 20% below 2020 levels
- In 2030, the obligation will be 49% below 1990 levels, which is approximately 40% below 2020 levels

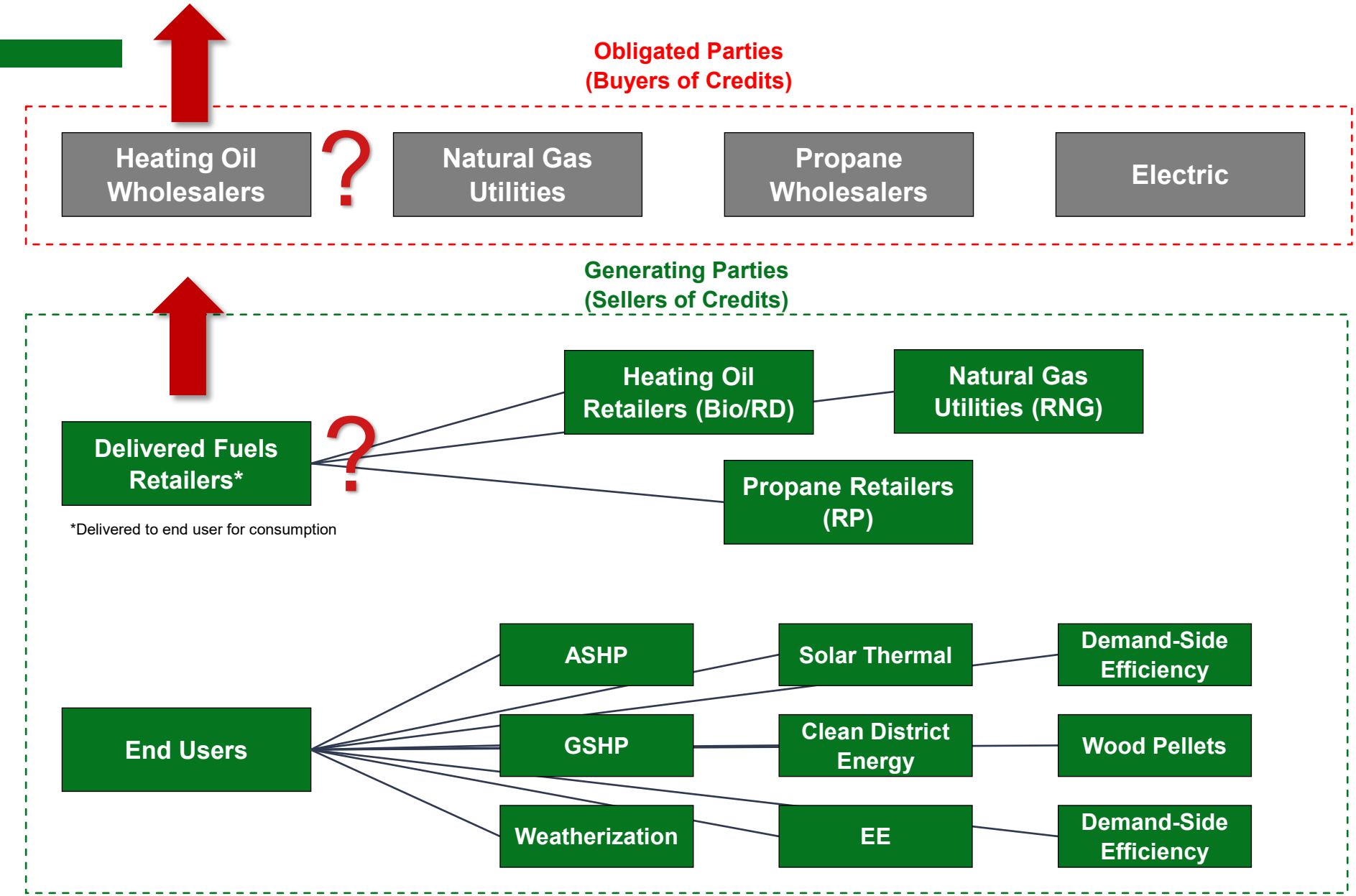
Source: Diversified Energy Specialists Research & Analysis

Clean Heat Credits by the Numbers

The total obligation will be the reduction of greenhouse gas emissions from the base year that aligns with the Massachusetts climate goals

Sector	Metric Tons of CO2 (2019)	2025 Obligation (Credits)	2030 Obligation (Credits)
Residential Gas	7,100,000	1,420,000	2,840,000
Commercial Gas	6,500,000	1,300,000	2,600,000
Industrial Gas	2,500,000	500,000	1,000,000
Residential Oil & Propane	6,100,000	1,220,000	2,440,000
Commercial Oil & Propane	1,400,000	280,000	560,000
Industrial Oil & Propane	900,000	180,000	360,000
Total Obligation:		**4,900,000**	**9,800,000**

Source: Diversified Energy Specialists Research & Analysis



Source: Diversified Energy Specialists Research & Analysis

How To Prepare

It is important for both retailers and wholesalers to be prepared for when a Clean Heat Standard is implemented in their state

- ✓ Start blending biodiesel
  - ✓ Establishing supply, becoming comfortable with higher blends, and educating technicians before a CHS is implemented will ease the transition into the program
- ✓ Understand that this is a tax on fossil fuels, creating higher prices at the rack
- ✓ Understand the big picture
  - ✓ The price of biodiesel and heating oil will increase within a CHS
  - ✓ The value of assets (storage and terminals) will increase
- ✓ Connect with an industry professional that can get the best value for your Clean Heat Credits
- ✓ As an industry – create a universal plan

Source: Diversified Energy Specialists Research & Analysis

How Should Our Industry Respond?

It is imperative that our industry respond to the new challenges that we will face over the next decade in order to secure a future for our businesses

Customer Outreach

- ✓ Communicating with our customers is imperative
- ✓ The narrative and way in which we communicate with them matters
- ✓ How often we communicate with them
- ✓ Educate our customers on the benefits of our fuel and the dangers of electrification

State Association Marketing Campaigns

- ✓ We must fully fund our state associations marketing campaigns
- ✓ Each state will be spending millions of dollars a year, every year, to educate consumers on the benefits of heat pumps
- ✓ We must get in front of all consumers and homeowners and educate them on the benefits of renewable biodiesel

Source: Diversified Energy Specialists Research & Analysis, IRA

Diversified Energy Specialists

Speaking with an expert in these markets to help your business prepare for these programs is important for your business

How DES Can Help You Prepare

- ✓ Clean Heat Standards
  - ✓ Retroactive minting
  - ✓ Trading of Credits
  - ✓ Reporting
  - ✓ Banking decisions
- ✓ Building Standard
  - ✓ Procuring carbon offsets
  - ✓ Purchasing RPS Class I RECs
  - ✓ Reporting
  - ✓ Choosing a baseline year
- ✓ Cap-and-Trade
  - ✓ Auctions
  - ✓ Secondary market allowance trading
- ✓ Portfolio Standards
  - ✓ Reporting and selling of AECs
  - ✓ Selling your AECs for the highest value in the market
- ✓ All Markets
  - ✓ Advising
  - ✓ Trading and capitalizing on OTC markets

Source: Diversified Energy Specialists Research & Analysis

Background & Contact Information

DIVERSIFIED ENERGY SPECIALISTS

- Thermal Portfolio Standards
- Emissions Standards
- Carbon Offsets
- Renewable Energy Consulting

Diversified Energy Specialists

- ✓ Renewable energy consulting
  - ✓ Thermal technologies
  - ✓ Greenhouse gas emissions reduction
  - ✓ Rebate programs
- ✓ Environmental markets trading
  - ✓ Renewable portfolio standards
  - ✓ Thermal portfolio standards
  - ✓ Low-carbon fuel standards
  - ✓ Cap-and-Trade programs
- ✓ Carbon offsets
  - ✓ Purchasing
    - ✓ Procurement
    - ✓ Aggregation

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