vol. 10.1

CEMA *Aegis*

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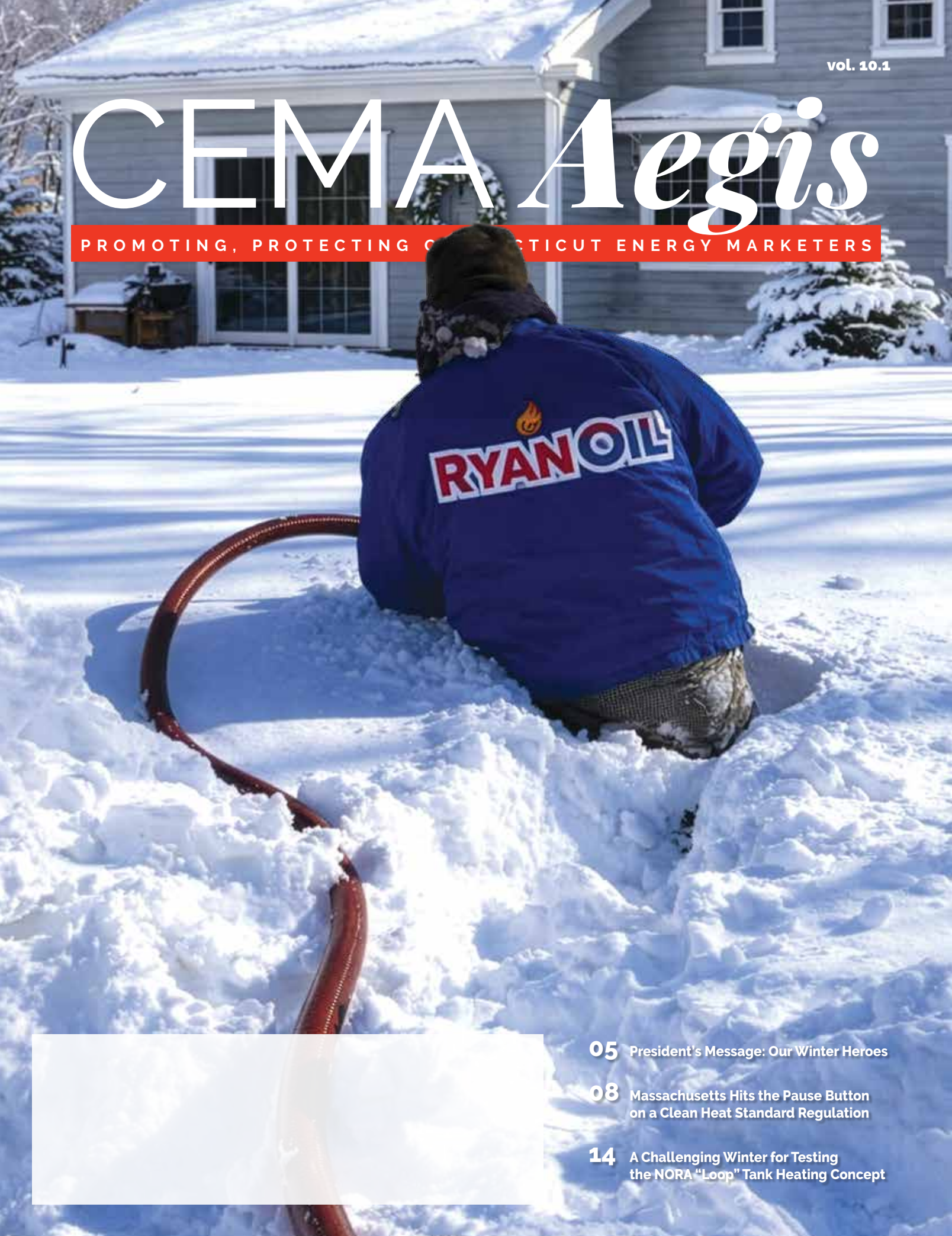

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ABOUT CEMA

In 1950, a small group of concerned fuel oil dealers and gasoline distributors came together to do some good for their customers and their industry. The result was the creation of the Independent Connecticut Petroleum Association (ICPA). Since then, the ICPA has been providing a forum for petroleum marketers of all types to enhance their businesses and improve the industry. On January 1, 2013, ICPA became the Connecticut Energy Marketers Association (CEMA).

Today, the CEMA is a thriving organization with more than 585 members with 13,000 Connecticut-based employees whose priority is to strengthen and protect the future of the petroleum industry.

The CEMA keeps members up-to-date on the latest legislative and regulatory proposals from our state and federal government, and defends the interests of all petroleum marketers throughout the state of Connecticut. The collective strength of our membership provides the platform by which the petroleum industry can continue to flourish, by working with government regulators to promote, preserve and protect our industry in today's business climate.

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MESSAGE
from the President

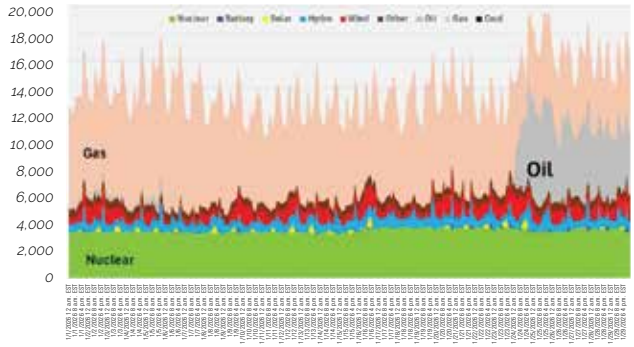
Meeting the recent challenges we have faced as an industry has not been easy, but rising above them is what defines us.

This past winter tested our industry in ways few could have imagined. Just as we navigated one of the harshest seasons in recent memory, we were confronted with yet another layer of uncertainty as conflict in Iran sent shockwaves through already volatile energy markets. At times, it has felt like one challenge after another. Bitter cold, relentless snow, a blizzard, now global instability, and rapidly increasing prices. It has been exhausting, and it has been real.

And yet, through it all, you showed up.

When temperatures dropped to dangerous levels and demand surged, the natural gas system faltered under pressure. In that critical moment, it was our industry that stepped forward quietly and reliably to ensure homes stayed warm and the lights stayed on. Because of your commitment, a potential crisis was avoided.

NEW ENGLAND ISO – JANUARY 2026 – GENERATION IN MW



The conditions this winter demanded extraordinary resilience. From frozen harbors to snow-covered roads, every day required problem-solving, coordination, and perseverance. CEMA worked alongside partners at every level, from the U.S. Coast Guard breaking ice in Stamford, Bridgeport, and New Haven to give barges access to terminals, to federal and state agencies, providing the driver hours-of-service waivers needed to keep fuel moving, and an exception from the commercial vehicle highway bans for gasoline and heating fuels. But policies and waivers alone don't deliver fuel. You do!

Now, as we turn toward spring, uncertainty hasn't faded. Markets remain on edge, reacting to global events and the fear of supply disruptions. Prices are rising, and with them, concern among the customers who depend on us.

OIL SUPPLY DISRUPTIONS COMPARED

CRISIS	SUPPLY DISRUPTED	SPARE CAPACITY AVAILABLE (% OF WORLD)	CAPACITY LOCATION
SUEZ CRISIS (1956-57)	10%	35%	U.S., some in Gulf
ARAB OIL EMBARGO (1973)	7%	8%	Saudi/Gulf
IRAN REVOLUTION (1978-79)	5%	5%	Saudi
GULF WAR (1990-91)	9%	4%	Saudi
IRAN WAR (2026)	20%	0%	N/A - Disrupted

Source: Rapidan Energy

But if this winter has proven anything, it's this: in the most difficult moments, our industry doesn't retreat; we respond, we rise to the occasion, and we meet the challenge!

Your work is not easy. It never has been. But it matters deeply. It matters when a family wakes up warm on the coldest morning of the year. It matters when the electric grid holds steady. It matters when others fall short, and you step in without hesitation. And too often, it is taken for granted.

The challenges we face are real, and at times, overwhelming. But so is the impact of what you do every single day. Your dedication, your grit, and your care for the people you serve are what carry us through.

That is something to be proud of. That is something worth recognizing. And that is what makes this industry, not just essential, but truly exceptional.

The cover of this issue of *Aegis* epitomizes the efforts of all of our members and what they do to make sure fuel is supplied to motorists, homes, and businesses in Connecticut and beyond. The staff at CEMA works every day to follow the example you have set, and we are here to help you in any way.

Christian Herb
PRESIDENT

CELEBRATING EXCELLENCE AT CEMA & ENTECH

Late last year, our CEMA/ENTECH family had the distinct joy of celebrating two extraordinary colleagues whose passion, dedication, and talent continue to elevate our entire industry—Nickey Kollie and Kate Lennon. Both were honored by Women in Energy (WIE), a national organization founded to create a powerful community where women in energy can connect, grow, and thrive.

Their mission is to connect and empower women working in the energy industry by providing career resources, creating networking and mentoring opportunities, promoting educational courses, and developing strategies to minimize obstacles women may face in the industry.

▸ Nickey Kollie

At WIE's annual meeting, CEMA's Director of Legislative Affairs & Member Services, Nickey Kollie, was honored with the Rising Star Award, an accolade reserved for emerging leaders whose contributions signal a bright and impactful future.

Nickey's journey is nothing short of inspiring. From her start as a college intern to becoming a cornerstone of our organization, her decade-long commitment to CEMA reflects both perseverance and passion. Along the way, she even gained firsthand industry experience with Tracey Energy, something she proudly (and rightfully!) reminds us of often as being the only staff person to actually work for an oil company.

Today, Nickey wears many hats with grace and excellence. Whether she's administering NORA's Upgrade & Save rebate program, supporting ENTECH's marketing initiatives, making presentations for CEMA's Next Generation Energy Pos program, assisting in meeting planning, and advocating at the State Capitol as a registered lobbyist, she brings energy, insight, and purpose to everything she does. Her service on the Low Income Energy Advisory Board and as Vice Chair of the Naugatuck Fair Rent Commission further underscores her commitment to community. Add to that her Master of Public Administration and her work as Co-Founder of Seshiemeh Farms in Liberia, and it's clear: Nickey's impact reaches far beyond our walls.

She is, quite simply, an indispensable force, and this recognition is richly deserved.

▸ Kate Lennon

We are equally proud to celebrate Kate Lennon, who was presented with WE's EmpowerHER Award, an honor recognizing exceptional leadership, operational excellence, and unwavering dedication.

For nearly 25 years, Kate has been the heartbeat of ENTECH Advance Energy Training. Beginning as a receptionist and quickly rising to Administrative Director, Kate has long exceeded the bounds of any title, serving, in many ways, as the engine that keeps the entire institution running.

Her influence touches every corner of ENTECH, from recruiting and supporting students to guiding instructors, maintaining the school's state certification, and serving as a trusted resource providing our members guidance on licensing and apprenticeship issues. Her work has helped shape ENTECH into Connecticut's premier HVACR training facility in the region.

L to R: Nickey and Kate

Kate's expertise is so widely respected that state agencies, licensing boards, and trade organizations regularly seek her counsel. Her involvement with OESP, Eastern Energy Expo, and PGANE has made her not just a leader, but a familiar and trusted presence throughout the industry.

For years, Kate has been the quiet force behind so much of ENTECH's success. This award is not just well-earned, it's long overdue and greatly appreciated.

CEMA & ENTECH President Chris Herb perhaps said it best:

"It is an honor and a privilege to come to work every day with two of the most inspirational people I have ever worked with. Kate and Nickey's work to promote and protect our industry is reflected in the thousands of professionals we've trained and the successes we've achieved at the legislature. We are deeply grateful to WE for recognizing these remarkable individuals."

Please join all of us at CEMA and ENTECH in celebrating Nickey and Kate, not only for these well-deserved honors, but for the passion, excellence, and heart they bring to our industry every single day!

MASSACHUSETTS HITS THE PAUSE BUTTON ON A CLEAN HEAT STANDARD REGULATION

POLITICS, PUBLIC PRESSURE & THE MEDIA CONTRIBUTE TO DELAY

Michael Ferrante

Joe Uglietto

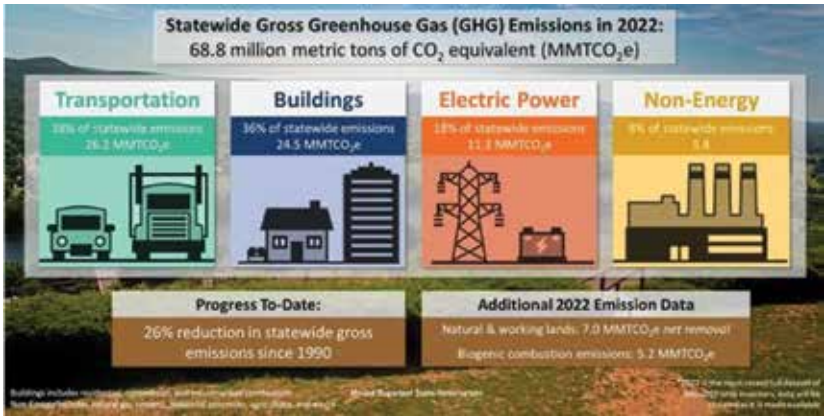
By Michael Ferrante, Massachusetts Energy Marketers Association & Joe Uglietto, Diversified Energy Specialists

Last December, following several months of consumer outrage over sky-high utility rates and the ensuing media coverage, the Massachusetts Department of Environmental Protection (MassDEP), at the direction of Governor Maura Healey, who is seeking reelection this November, announced that in order to inform development of a Clean Heat Standard tailored to the needs of Massachusetts residents, the Department now plans to phase-in this standard no earlier than 2028.

As stakeholders in the regulatory process for the Clean Heat Standard, we were notified of the delay directly from MassDEP.

So why did Massachusetts officials delay the implementation of a regulation that was expected to be in place in 2025 and has been hailed as the cornerstone of the state's efforts to curb greenhouse gas emissions (GHG) from the building sector, the second largest contributor to statewide emissions?

Furthermore, how did the concept of a Clean Heat Standard emerge in Massachusetts? What is a Clean Heat Standard? Will a Clean Heat Standard eventually be implemented in Massachusetts and other states, or will the effects of this type of program help stem the tide of expensive climate change programs that are directly impacting consumers and businesses in the northeast? And finally, how will a Clean Heat Standard affect the price of heating oil and propane?



Let us answer those questions by starting with some history of climate change laws and policy in Massachusetts.

2008 Laws Set the Stage for Aggressive Climate Action

The roots of the Massachusetts Clean Heat Standard can be traced back to 2008 when the state enacted two laws — the Global Warming Solutions Act (GWSA), a landmark law that required aggressive statewide reductions in GHG emissions over time; and the Green Communities Act, which established Mass Save, a $4.5 billion utility-driven energy efficiency program that is funded by almost every gas and electric customer across the state via a surcharge on their monthly utility bills.

The initial GWSA set economy-wide and sector-wide GHG emission reduction goals of between 10% and 25% below statewide 1990 GHG emission levels by 2020, and at least 80% below statewide 1990 GHG emission levels by 2050. Then, in 2021, the GWSA was amended by state lawmakers, and more aggressive GHG goals were set in five-year increments beginning in 2030 and culminating with a goal of net-zero GHG emissions for 2050.

According to data published by the state's Executive Office of Energy & Environmental Affairs, the transportation sector contributes 38% of the state's GHG emissions, while the building sector accounts for 36%. The remaining 26% of emissions come from electric power generation, industrial, and non-energy sources.

It is worth noting that the GWSA has faced two legal challenges, and in both cases, the Massachusetts Supreme Judicial Court ruled that state officials must abide by the law and reduce GHG emissions on a sector-by-sector basis.

These court decisions, along with the modifications to the GWSA and a consultant report from the Regulatory Assistance Project, prompted former Massachusetts Governor Charlie Baker to recommend the possible development of a Clean Heat Standard in his 2022 Comprehensive Clean Energy & Climate Plan.

Governor Baker also established the Commission on Clean Heat, and the Commission's final report recommended, among other things, the development of a Clean Heat Standard to assist in reducing emissions from the building sector.

What Is a Clean Heat Standard?

Based on the framework for a Clean Heat Standard regulation that MassDEP announced in 2023, the goals of the delayed regulation are to reduce GHG emissions from heating oil, propane, and natural gas, require the sellers of these fuels to install so-called clean technologies that include liquid biofuel and electric heat pumps and eventually eliminate the use of all fossil fuels for space heating in home and commercial buildings though the installation of electric heat pumps.

To incentivize retail heating oil and propane marketers and natural gas utilities to install approved heating technologies, MassDEP is proposing to offer clean heat credits to track the implementation and use of clean heat and to demonstrate compliance with the regulation. If these energy suppliers do not install electric heat pumps or deliver liquid biofuel to meet compliance under a Clean Heat Standard, they will have to purchase credits from energy suppliers who have complied.

From Western Mass News

While we have yet to see an official draft of a Clean Heat Standard regulation from MassDEP, it appears that both waste-based and crop-based biofuels, as well as renewable diesel, will qualify for credits, with crop-based biofuels qualifying on a temporary basis.

The draft framework of the Clean Heat Standard also includes a full — whole home — electrification standard. The number of full electrifications required will be based on annual fuels sales for natural gas, heating oil, and propane. The framework also includes an equity carve-out whereby 25% of the total full electrification requirement would be directed to projects that serve low-income households.

Massachusetts: A Case Study of Politics and the Cost of Climate Action

The announcement last December of a two-year postponement of a Clean Heat Standard regulation in Massachusetts is unquestionably the result of public dissent over the $4.5 billion Mass Save program and other costly climate change mitigation activities.

The Mass Save program is funded through monthly delivery charges paid by millions of natural gas and electric customers across the Commonwealth. The program provides rebates to homeowners and businesses for weatherization and heating system upgrades and is administered by six utility companies, including the state's largest providers of natural gas and electricity — National Grid and Eversource. Mass Save operates on three-year cycles, and the new three-year plan began in January of 2025.

In prior years, Mass Save offered equipment rebates for all fuels — heating oil, propane, and natural gas. But because Massachusetts is committed to electrifying every home and business statewide to electric heat pumps, the program now only offers equipment rebates for heat pumps. To accelerate the transition to heat pumps, the budget for the current Mass Save plan ballooned from a prior budget of $3 billion to an initial $5 billion.

The program has become an easy target for critics because millions of ratepayers who choose not to avail themselves of the Mass Save programs are subsidizing others who want to install a heat pump.

When millions of Massachusetts residents opened their first 2025 utility bills, they were hit with sticker shock. In most cases, the delivery fees, which include fees for energy efficiency (Mass Save), renewable energy, solar programs, and electric vehicle programs, were much higher than the actual cost of the gas or electricity used.

For example, a recent monthly electric bill from National Grid for a 1,200-square-foot condominium totaled $378.24 with $146.34 charged for electricity supply, while $231.90 was charged for delivery services.

The public's angry response last year to their extraordinarily high utility bills has been swift and furious, with extensive media coverage that continues today. Governor Healey tried to calm the waters by immediately ordering a $500 million cut to the Mass Save budget. State lawmakers scrambled to explain how and why they voted for climate legislation and climate mitigation programs that are being funded to some degree by high utility rates.

Since cutting Mass Save by $500 million, Healey also ordered the utilities to reduce the current winter rates, but will allow

> When millions of Massachusetts residents opened their first 2025 utility bills, they were hit with sticker shock."

the utilities to recoup the lost revenue when spring/summer rates take hold. Her decision to scrap promulgation of a Clean Heat Standard until 2028 clearly helps her avoid another minefield while she tries to get reelected in November 2026.

What Does the Future Hold for a Clean Heat Standard?

There are two reasons that indicate a Clean Heat Standard will eventually emerge in Massachusetts.

First, as mentioned, Massachusetts is bound by statute to steadily reduce GHG emissions in both the building and transportation sectors. A Clean Heat Standard would be the logical mechanism to cut emissions from fossil fuels for space heating and give state officials another tool to advance their heat pump agenda.

Secondly, back in January 2025, MassDEP successfully promulgated a companion regulation to a Clean Heat Standard — one that will help the Department track the progress of reducing GHG emissions and fossil fuel use.

The regulation, 310 CMR 7.71: Reporting of Greenhouse Gas Emissions, impacts both retail heating oil and propane companies, the natural gas utilities, and the wholesale/terminal operators who bring fuel to Massachusetts.

For heating oil and propane marketers, they must register with the Department and report on a quarterly basis their fuel volumes for both fossil and non-fossil fuels, and the corresponding GHG emissions. For wholesale/terminal operators, they must also register with the Department and provide monthly reports on how much heating oil and propane is brought into Massachusetts for resale to heating oil and propane retailers.

Other northeast states are certainly paying close attention to what eventually transpires in Massachusetts regarding a Clean Heat Standard and vice versa. Whether it is Massachusetts, Vermont, or Connecticut that is successful in enacting a regulation, there is no doubt that it will transform the heating oil, propane, and the renewable liquid fuels marketplace.

MA CHS Cost – Heating Oil

Heating Oil

	Year 1	Year 2	Year 3	Year 4	Year
			Per Credit		
Full Electrification (Credit Cost)	$ 6,000.00	$ 7,000.00	$ 8,000.00	$ 9,000.00	$ 10,000.00
Low-income electrifications (Credit Cost)	$ 12,000.00	$ 14,000.00	$ 16,000.00	$ 18,000.00	$ 20,000.00
Emissions reductions (Credit Cost)	$ 190.00	$ 190.00	$ 190.00	$ 190.00	$ 190.00
			Full Cost of CHS Program - Per Gallon of Heating Oil		
Full Electrification (Cost Per Gallon)	$ 0.01013	$ 0.05498	$ 0.11565	$ 0.19350	$ 0.29171
Low-income electrifications (Cost Per Gallon)	$ 0.00506	$ 0.02749	$ 0.05783	$ 0.09695	$ 0.14586
Emissions reductions (Cost Per Gallon)	$ 0.06413	$ 0.13264	$ 0.20091	$ 0.28476	$ 0.38950
Total Cost of CHS Per Gallon of Heating Oil:	$ 0.079	$ 0.215	$ 0.379	$ 0.576	$ 0.807

	Year 1	Year 2	Year 3	Year 4	Year 5
Credit per gal UCO Biodiesel	$ 1.83	$ 1.83	$ 1.83	$ 1.83	$ 1.83
Credit per gal Soy Biodiesel	$ 0.92	$ 0.92	$ 0.92	$ 0.92	$ 0.92

MA CHS Cost – Propane

Propane

	Year 1	Year 2	Year 3	Year 4	Year 5
			Per Credit		
Full Electrification (Credit Cost)	$ 6,000.00	$ 7,000.00	$ 8,000.00	$ 9,000.00	$ 10,000.00
Low-income electrifications (Credit Cost)	$ 12,000.00	$ 14,000.00	$ 16,000.00	$ 18,000.00	$ 20,000.00
Emissions reductions (Credit Cost)	$ 190.00	$ 190.00	$ 190.00	$ 190.00	$ 190.00
			Full Cost of CHS Program - Per Gallon of Propane		
Full Electrification (Cost Per Gallon)	$ 0.00565	$ 0.03069	$ 0.06457	$ 0.10825	$ 0.16286
Low-income electrifications (Cost Per Gallon)	$ 0.00283	$ 0.01535	$ 0.03228	$ 0.05412	$ 0.08143
Emissions reductions (Cost Per Gallon)	$ 0.03580	$ 0.07405	$ 0.11501	$ 0.15897	$ 0.20629
Total Cost of CHS Per Gallon of Propane	$ 0.044	$ 0.120	$ 0.212	$ 0.321	$ 0.451

Charts from Diversified Energy Specialists

Heating Oil & Propane Prices Under a Clean Heat Standard

The accompanying charts are based on the Clean Heat Standard framework issued by MassDEP and project a five-year analysis on the impact a Massachusetts Clean Heat Standard could have on retail heating oil and propane prices.

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Dr. Tom Butcher

Neehad Islam

A CHALLENGING WINTER FOR TESTING THE NORA "LOOP" TANK HEATING CONCEPT

Dr. Tom Butcher, National Oilheat Research Alliance & Neehad Islam, National Oilheat Research Alliance

In Volume 9.2 of the CEMA Aegis magazine, we provided some background on NORA's work on the storage of high biodiesel blends in outside tanks. During the 2025/2026 heating season, testing was done on the new NORA "Loop Heater" concept at the CEMA Entech training facility. In this article, we are providing an update on this work.

NORA has a broad goal of eliminating technical barriers to enabling the transition to 100% renewable fuel. Biodiesel, our primary renewable fuel candidate clouds and gels at temperatures higher than historical petroleum No. 2 oil, creating a challenge for outside residential tanks and all outside storage and handling. Approximately 10% of the industry's home oil tanks are outside. In some regions of the market and some applications, the number of outside tanks is much greater. This includes, for example, parts of Pennsylvania and Maryland, and applications such as mobile homes.

The cold flow properties of B100 depend strongly on the feedstock used. Soy-based biodiesel is much better in cold climates than tallow- or waste grease-based fuels. Blending biodiesel with other fuels can also strongly improve cold flow properties. Additives are now available that can dramatically improve the pour point of blends, such as B50. Even with the use of these additives, we may still need to mitigate clouding, the fall-out of wax, and filter issues with cold flow storage for extended times. In heavy-duty truck applications, an innovative technology has been developed involving dual fuel (diesel/biodiesel) operation with heating of the biodiesel storage tank from engine heat. Another approach is the use of a magnetic heater that attaches to the biodiesel tank.

NORA has explored a range of options for keeping B100 flowing with outside tanks. In-tank electric heating rods have been available with different power levels. Some of this work has been done at the CEMA Entech facility in Cromwell. From our work, a minimum power level of 200 watts is needed for the Connecticut climate, and many heaters have much lower power levels. With an in-tank heater, the connecting fuel line(s) need to be insulated and heat-traced, since flow through them only occurs during burner operation.

At the State University of New York in Morrisville, NORA has an ongoing collaboration that involves a plastic (Granby) outside tank installed in a custom-built wooden shed. The shed is insulated and has two, 100-watt, blanket-type heaters in the air space. These heaters are thermostatically controlled. NORA monitors temperatures and power remotely and, over two seasons in the Adirondacks, this approach has proven fully successful. Cost of a heated shed is, of course, leading to interest in alternative approaches.

During this heating season, NORA has been testing at Entech a new concept termed a "Loop Heater." (Figure 2). This involves the addition of a low-pressure, low-power circulating pump and a heated copper coil located inside. This loop provides continuous heat to the tank and

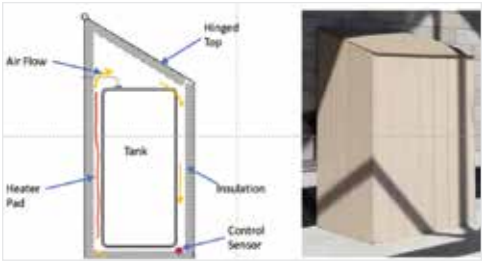


Figure 1 Illustration of the heated, insulated B100 storage system at SUNY Morrisville

insulated supply and return lines with all electrical connections indoors. The heater on the copper coil is self-regulating. The resistance of the heating elements increases via microscopic expansion of the heater material as the temperature rises, limiting the flow of electricity and reducing power draw.

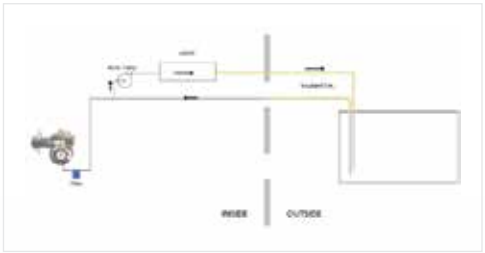


Figure 2 Illustration of the Loop Heater Concept

At the start of the 2025/2026 season, the installed heater had a power draw of about 100 watts. During the first part of the season, some important lessons were learned that led to configuration changes. From a combination of waxed fuel and tank bottom sludge, the small inlet strainer on the circulating pump started to become blocked, leading to a reduced flow in the loop. In response, a spin-on

filter was added before the pump, and the heater capacity was doubled. Also, based on our monitored temperatures, the heat loss in the loop, even with insulated lines, was found to be high. The team focused on the top of the tank where the fuel lines passed through an adapted steel bung fitting. Heat from the fuel lines was being lost directly to the steel tank wall and the environment. In response, the steel bung was replaced with an insulating PVC bung, and a small sheet of insulation was laid on the top of the tank (Figure 3).

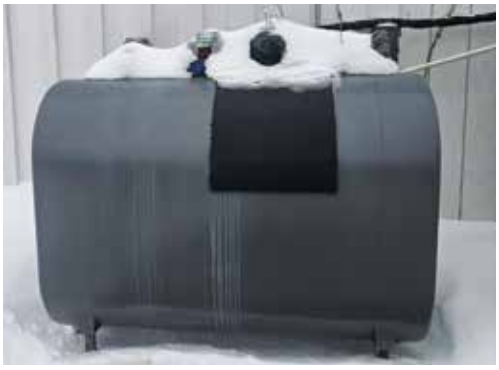


Figure 3 Outside steel tank at Entech with added top insulation pad by fuel line pass-throughs

When the tank is not full, the air above the fuel in the tank approaches the outdoor temperature. The copper fuel lines passing through this cold air can lose significant amounts of heat. Clearly, the most challenging conditions are very cold weather with high winds and snow.

During February, there were two clear challenge periods. The first was the very cold weather in the February 8–10 period, and the second was the blizzard in the February 21–23 period.

During the very cold weather, to avoid having a boiler shut down on a weekend, we decided to add an extra in-tank heater. This was turned off again after the cold period ended.

Figure 4 shows the measured trend in the outdoor temperature (blue) and the in-tank temperature (red) during the cold period in early February. During this time, the outdoor air reached 3°F, and the tank fuel stayed at about 40°F. The boiler operating with the B100 fuel in this tank did not have a shutdown. Note: In contrast, the lowest measured temperature at SUNY Morrisville was -9°F.

"Even with the use of these additives, we may still need to mitigate clouding, the fall-out of wax, and filter issues with cold flow storage for extended times."

During the blizzard later in February, the "Loop Heater" was the only source of heat for the tank, and the system worked without issue during this period.

Based on the results of the 2025/2026 heating season, we have learned a great deal and have some additional improvements that have been identified for evaluation in the next heating season. We plan to move the filter downstream of the heater simply to ensure that all of the fuel is in a liquid state. Our testing has not shown this to be a serious concern, but we feel problems could occur under some conditions. We learned that the heat "harvested" from the uninsulated copper tube passing through the indoor environment is about equal to what is also added by the electric heater. This will depend on the specific case, but we plan to increase this "free" heating as much as possible.

In the tank, it is clear that the steel walls are essentially at the outdoor ambient temperature. On the inside, the fuel adjacent to the walls must be fully gelled under cold conditions. In planning our heater, we expected to have a liquid "core" in the tank with the gelled fuel serving as partial insulation. However, because of the high circulating loop flow rate (~20 gph) and the geometry of the supply and return lines, we found the temperature distribution inside of the tank to be fairly uniform. We are planning changes to the fuel line configuration inside the tank to better encourage the creation of a smaller, warm zone in the tank.

The NORA team would like to acknowledge the immense support from the CEMA/Entech staff, especially lead instructor Chuck Caisse and Dave Sousa, in enabling this work to be done. They provided rapid support and response to requests from the NORA team when any issues occurred, or we wanted changes to be made in the test conditions. We also appreciate the thoughtful ideas they contributed. The Entech training facility is ideal for these tests. They have space for the outside tanks, boilers indoors to provide realistic loads, and backup heat sources that will turn on if a technical problem with the test occurs. We at NORA hope to continue this fruitful relationship with CEMA/Entech as collaborations such as this will drive progress in an industry that is already forward-facing.

NORA was authorized by Congress in 2000 to provide funding that enables the liquid fuel heating industry to provide more efficient, more reliable, and lower carbon home heating and hot water to American Consumers. NORA's mission is centered around these primary directives: Research & Development, Carbon Reduction, Energy Efficiency, Professional Education, and Consumer Education.

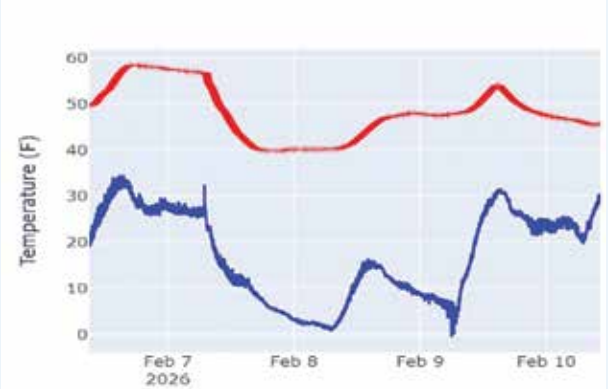


Figure 4 Profile of outside (blue) and fuel (red) temperature during cold period in February 2026.

THE WINTER OF OUR DISCONTENT

By CEMA

Our industry was hit by a perfect storm this past winter. First extreme weather in February, then the Persian Gulf conflict in March. In retrospect, what happened, and how did it affect heating fuel retailers?

Extreme Weather

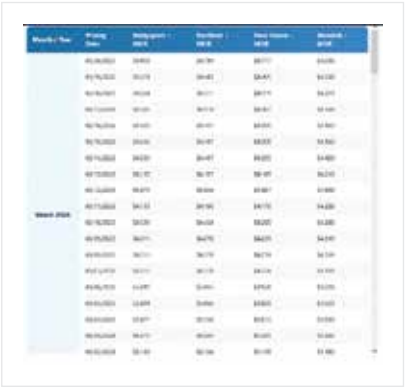
February began with extreme cold weather. The entire first week of the month had average temperatures of 16 degrees F in Hartford, 17 degrees in Danbury, and 20 degrees in New Haven, with Heating Degree Days 40% higher than the same period last year across the state. For heating fuel retailers, it was a case of "be careful of what you wish for." Then, "adding insult to injury," the state was hit with two massive snowstorms, each dumping a foot or more of snow pretty much statewide. Cold weather and storms froze access to ports and hindered road transport.

The heating industry was socked with supply disruptions, given both physical delivery disruptions and the huge spike in customer demand to heat their homes. And that meant prices spiked as well, with mid-day price increases at the rack.

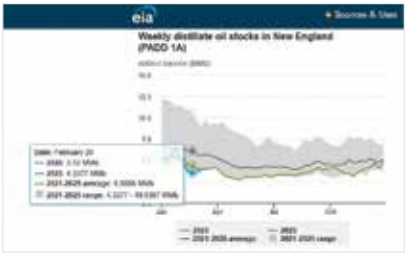
Adding "fuel to the fire" were businesses on interruptible natural gas contracts, and power plants that had to switch to oil because their natural gas had priority to go to homeowners. We're told one local power plant in Connecticut alone required 500,000 gallons of diesel a day to keep running during this period. Needless to say, this contributed to sucking the market dry of diesel and heating oil in Connecticut.

So, it was our industry that kept homeowners warm, not only for our heating oil and propane customers, but even for natural gas and electricity-heated homes.

For those in the LIHEAP program, it soon became quickly apparent that the Department of Social Services (DSS) was hapless to approve rates commensurate with the realities of rack prices. CEMA got DSS to allow vendors to switch from Margin Over Rack (MOR) to Discount Off Retail, and many did avail themselves of this, but it was too late in the season to be of much use. The following chart shows DSS MOR pricing for the end of February and early March. Vendors rarely received the 50-cent margin they were promised under the MOR program, and in some cases, even lost money on a delivery to their LIHEAP customers.



As EIA reported, all these factors caused distillate supply stocks in New England to plummet below the five-year moving average. This supply disruption is illustrated by the Energy Information Administration's distillate stock chart below.



EIA's distillate supply chart shows on February 20 that New England's stock of distillate was 19% less than 2025's and 42% less than the five-year average (the blue line above tracks 2026 stocks).

"We're told one local power plant in Connecticut alone required 500,000 gallons of diesel a day to keep running during this period."

Market Backwardation

Compounding this distillate supply disruption was market backwardation.

Backwardation occurs when current spot prices for product are higher than future prices, three, four, or more months in advance. This is because the market factors in lower future demand, higher future supply, or a combination of both, so that future prices trade lower than current prices. This is shown from a chart earlier in the year for NYMEX futures for heating oil below. These sorts of charts are, of course, closely watched by fuel retailers and wholesalers, as they make their buying decisions going forward.

In the crude oil market, backwardation is more normal than its opposite, contango, because oil producing countries try to manipulate the market to keep current prices high in order to satisfy their budget needs.

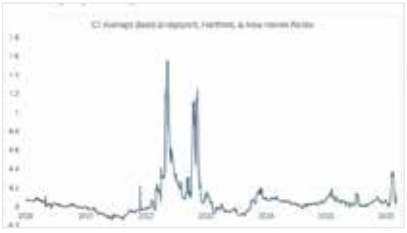
But when actual supply disruptions occur, this phenomenon is only compounded. That's because suppliers are disincentivized from holding product in storage at their terminals, if the high-priced oil they buy and store today is worth less in a month or two. Looking at the April contract in the chart above, the price of heating oil is $4.3667, but come this winter, in December, it's $2.9598. So, backwardation results in a vicious circle: Lack of supply aggravates backwardation, and backwardation means suppliers don't want to store product today, worsening the current supply situation.

Over time, as futures contract approach maturity, the futures price will converge with the spot price, otherwise an arbitrage opportunity would exist. We see this already even in the chart to the left, where the April price was up 0.57% from the previous close, while the August price, while still higher, was up 2.38%, converging toward the current spot price.

Back to Basis

To help explain volatile rack prices, we worked with Angus Energy to present a webinar for members on "basis." Basis is the difference between the NYMEX price (in our case of heating oil) and the rack price you pay your suppliers.

As our webinar explained, heating oil basis is subject to various factors, a major one of which is the supply of distillate to the racks. The chart below from Angus shows the average heating oil basis at Bridgeport, Hartford, and New Haven racks from 2020 to today.



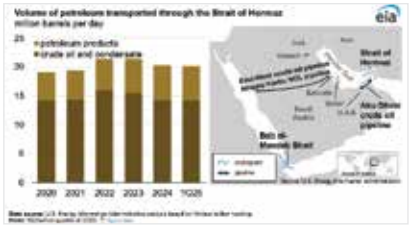
At some points, it was actually negative in parts of 2021 and 2023, which means your rack price was actually lower than the NYMEX. But we saw a huge spike to almost $1.60 per gallon in 2022 following the Ukraine War. That meant your rack price was $1.60 above the NYMEX! But it settled back before spiking briefly that fall, then following more normal patterns, about 10 cents/gallon more or less thereafter.

Then in 2026, we first see a spike to almost 40 cents/gallon in the January–February timeframe coinciding with extreme weather and low distillate stocks, as explained previously, before it settled down and then increased at the beginning of March to about 15 cents/gallon. So, both local supply disruptions and international factors affect the basis in Connecticut harbors.

The Middle East War

The second supply shock of the late winter, of course, was the conflict in the Persian Gulf. By the time you're reading this, it may be all over, but at the time of writing this article, it was going on full-fledged if not actually escalating.

The Persian Gulf is critical because it supplies around 20% of the world's crude and refined oil products. And the Strait of Hormuz is a critical chokepoint, as described by EIA: "The Strait of Hormuz, located between Oman and Iran, connects the Persian Gulf with the Gulf of Oman and the Arabian Sea. The strait is deep enough and wide enough to handle the world's largest crude oil tankers, and it is one of the world's most important oil chokepoints. Large volumes of oil flow through the strait, and very few alternative options exist to move oil out of the strait if it is closed. In 2024, oil flow through the strait averaged 20 million barrels per day (b/d), or the equivalent of about 20% of global petroleum liquids consumption."



And not only is the Strait of Hormuz a chokepoint for shipped oil, it's also the transit point for other critical products: 25% of the word's LNG supply, about 46% of the world's supply of urea, 30% of ammonia, 45% of sulfur, and 20%–30% of the world's supply of fertilizer, making it critical for agriculture. Also, almost 20% of aluminum imported to the U.S. comes from the Gulf.

As of this writing, the Strait of Hormuz was closed to almost all marine traffic. Normally, the Strait sees 80 oil tankers a day passing through it, many of which are Very Large Crude Carriers (VLCCs) transporting 2 million barrels of oil each. Now, except for an intrepid ship captain or two who turned off their ships' tracking transponders, and some ships going to India or China that Iran let through, that traffic through the Strait is effectively zero. This is illustrated in the following map showing the Strait, with the Iranian land mass to the north of it and Oman and the UAE to the south. Tankers are illustrated as either stationary tankers, orange dots docked off shore, not moving, to the east and west of the strait; or a few moving about shown as orange arrows.

So what was the actual effect of this closure of supply (again, as of this writing, we assume the Strait had been closed for a sustained period)? It doesn't look good, at least from the standpoint of mid-March.

As shown in the EIA chart above, total output from the Gulf in crude and refined products is about 20 million barrels per day. As shown on the accompanying map, not all oil has to be shipped through the Strait of Hormuz. There's a long East-West pipeline going from the Gulf to the Saudi port of Yanbu on the Red Sea coast, and a smaller one in Abu Dhabi circumventing the Strait. But together, these can only throughput about 5 million barrels per day.

Meanwhile, the 32 member nations of the International Energy Agency agreed to release 400 million barrels of oil, including 172 million by the U.S. But the issue here isn't the total amount, but the rate at which the release can occur, which is only 2–4 million barrels per day.

Finally, as mentioned, the Iranians have allowed some countries to exit the Gulf, and their own tankers have left without interference. This accounts for about just under 2 million barrels per day. Adding these relief measures together, we're still left with a *shortfall of 9–11 million barrels per day*, which is substantial and will push prices even higher.

Let's put these numbers in perspective. A 10 million barrels per day shortfall, over six weeks, amounts to a shortfall of over 400 million barrels, which is about the size of the entire U.S. Strategic Petroleum Reserve at full stock. Even at a 75% reduction in transit through the Strait, that's equivalent to the entire product stock of Germany, the U.K., and France. And let's not forget LNG. At a 75% transit reduction over six weeks, loss of LNG to the world's supply is greater than South Korea's entire LNG storage capacity.

As frequently mentioned, by the time you're reading this, the conflict will have ended, or at least is winding down. But the effects on pricing will last much longer, even if shipping is completely restored. Damaged refineries and gas fields will take months to repair, and even undamaged ones will take weeks to restart if they were shut down as a precaution. Shut down refineries in the Gulf have an almost 9 million barrels per day capacity. Plus, the price effect of any serious supply disruption can drag on. For example, the ground operation in the first "Gulf War" in 1990 only lasted 100 hours, but oil prices remained elevated for over 160 days, some 60%–80% higher than when the war started.

Price Effect on the Supply Chain

As a retailer, you are the last link in the petroleum supply chain from refiners to your customers. How has the price shock affected each link?

First, let's look at a chart from the federal Bureau of Labor Statistics (BLS) below, showing national retail and wholesale price indexes over the past 20 years. This chart clearly shows that retail prices (blue line) trail wholesale prices (green line) in a rising-price environment (2021–22), but fall less than wholesale prices in a falling-price environment (2023). The National Retail Federation concurs with this assessment, saying that across the economy, "wholesale commodity prices rose much faster than retail commodity prices during the inflationary peak."

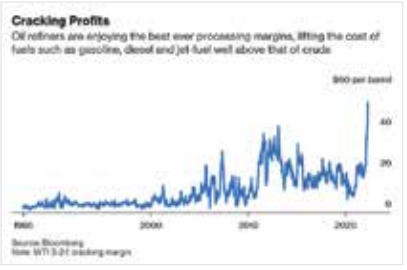
Second, let's look at actual heating oil prices tracked by EIA. Their price survey shows that heating oil's price in Connecticut on February 23 of this year (before the Middle East crisis) was $4.077/gallon, and on March 9 (a week after the Middle East crisis began) it was $5.106/gallon, a 25% increase. Meanwhile, the wholesale price increased 50% from $2.806/gallon to $4.201/gallon. So, the retail margin on February 23 was $4.077-$2,806 = $1.27/gallon, while on March 9, it as $5.106-$4.201 = $0.905. In other words, retailer margins, using EIA's own data, *declined* 36.6 cpg or 29% while prices were climbing rapidly in the period examined.

While there haven't been studies about margins for heating fuel retailers when prices rise, this has been studied extensively for gas station retailers. The Bureau of Labor Statistics has done a highly technical study on gas stations, and here's their conclusion: "The results of this study therefore imply that rising (falling) crude petroleum prices lead to shrinking (growing) margins in that same month."

Why does this happen? Studies cited in the BLS report have shown that "a consumer search model predicted consumers search for products less when prices are falling and more when prices are rising. If this is the case, consumers are more willing to seek out lower priced products when prices are rising, causing an increase in competition among retailers. This increase in competition then leads to lower profit margins for retailers. In cases where prices are falling, the opposite would occur, and profit margins would grow." This lets retailers slow the decrease in their prices in a falling market to recover margin lost when prices were rising. In other words, retailers are price sensitive to competition.

So does that mean the wholesalers are the ones primarily profiting in an inflationary price market? No. In our industry, your immediate supplier is just another "middleman" who passes on the price from upstream to you, making just a few cents per gallon, and likely making less margin in a rising price environment than in a falling one. They're in the same boat as you are for the most part.

Rather, it's the refiners who are profiting the most at the top of the supply chain. This is demonstrated by the "crack spread," which measures refiners' margins. Using the standard 3-2-1 crack spread (3 gallons of crude are distilled into 2 gallons of gasoline and 1 gallon of heating oil), we calculate a crack spread of 40.6 cents/gallon on February 20, 2026, a week before the Middle East war, and $1.065/gallon on March 16 noon. (The March price can be also be expressed as $44.73/bbl., which was the highest since the Ukraine War started in 2022). In other words, refiner margins more than doubled (262%) from February 20 to March 16.



Looking at these historic crack spreads, since the 1980s until 2000, crack spreads were hovering around just $5 per barrel; then after 2010, they were around $20 per barrel. The last spike shows 2022, when they spiked to over $50 per barrel as a result of the outbreak of the Ukraine War. They eventually settled back to the $20 range, at least until this last March, when they spiked back above $40 per barrel.

Closing Thoughts

In conclusion, petroleum products are priced internationally, with regional differences. For example, U.S. WTI is always a little less expensive than Brent, and crude oil in Japan was over $800 per barrel in March! But we in the U.S. are still not immune to international price volatility that we've seen, but certainly are less affected than countries like Japan that are heavily reliant on Gulf oil. Refiners have high margins because there's a huge shortfall (or at least anticipated shortfall as of March) in overall crude supply. It's even been said that Korea has shut down many refineries because they're not getting enough crude from the Persian Gulf. Releasees from the Strategic Petroleum Reserves around the world may help in the long run, but in the near term 2–4 million barrels per day isn't enough to make up for the 20 million not coming through the Strait of Hormuz. Finally, even as the war ends, it will take weeks if not months for refineries and gas fields to come back online, with high prices to be expected throughout the summer.

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SINCE 1871

NEW UST REQUIREMENTS (AND POTENTIAL "BURIED HAZARDS")

IN CONNECTICUT'S REVISED UNDERGROUND STORAGE TANK REGULATIONS

Attorney Jonathan Schaefer, Robinson+Cole, and Attorney Brian Freeman, Robinson+Cole

Attorney Jonathan Schaefer, Robinson+Cole

Attorney Brian Freeman, Robinson+Cole

Note: This article only summarizes select parts of complex regulations and other legal requirements. It is not legal advice or a substitute for legal advice, or for reviewing the actual regulations and other legal sources.

Gas station cleanup from Billings Gazette

It's been almost a year now since Connecticut Department of Energy and Environmental Protection (DEEP) did a major overhaul of the state's two sets of regulations for underground storage tank (UST) systems. The revisions (effective May 7, 2025) include a number of welcome features — such as extended life expectancy for certain UST systems, and improved organization and clarity in certain parts of the regulations. But the sheer scope of the revisions and the lack of a reader-friendly "blackline" from the revision process make it difficult to discern what has changed and how. The result is a risk of "buried hazards" in the revised regulations that may have been previously under-appreciated or missed.

This article highlights the revised regulatory landscape and focuses on key changes and compliance risks that may have been under-appreciated or overlooked for day-to-day UST operations.

A Complicated Regulatory Backdrop

First, a little background to set the stage: Connecticut's UST program operates on two parallel regulatory tracks. The primary and more complex set of regulations is based on a federal baseline, with many DEEP additions and tightenings. These regulations, found in sections 22a-449(d)-101 through -114 of the Regulations of Connecticut State Agencies (RCSA), apply to essentially all nonresidential petroleum UST systems in the state, with a few exceptions. (This primary set of regulations will be referred to in this article as "(d)-101.")

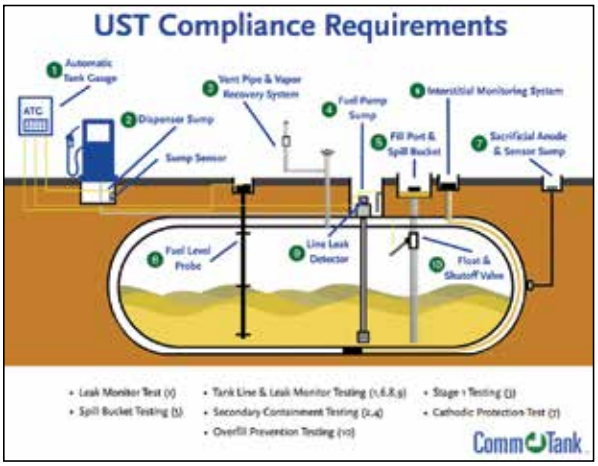
The exceptions — heating oil tanks for on-site heating use, certain smaller motor fuel tanks on farms, and a few uncommon types of specialized tank systems — are subject to the second set of regulations, found at RCSA 22a-449(d)-1. (This second set of regulations will be referred to in this article as "(d)-1.")

But wait, there's more: beyond the DEEP regulations, some additional standards regarding UST systems are still found in the Connecticut General Statutes. The 2025 regulation revisions did not fully incorporate these standards. They include: authority for DEEP inspectors to "redtag" noncompliant UST systems believed to present a release risk, requirements for offsite storage of certain UST system records, and certain design and construction standards for new UST systems.

Key Changes to the (d)-1 Regulations

Narrowed Exemptions

The (d)-1 regulations have long provided exemptions from parts of (d)-1 for certain types of UST systems. Under the revised regulations, only two such exemptions remain. First, a heating oil tank used for onsite heating with a capacity under 2,100 gallons is now exempt from reporting and life expectancy requirements only if the tank and connected piping are double-walled and were installed on or after October 1, 2003. Second, a heating oil tank used for on-site heating is exempt from release detection requirements only if installed before October 1, 2003.



Tank monitoring systems as shown by CommTank

Expanded and Tightened Design, Construction, and Monitoring Requirements

While still less complex than the (d)-101 rules, the revised (d)-1 rules now incorporate certain requirements previously limited to the (d)-101 rules.

Particularly notable here are new standards for interstitial monitoring for double-walled tanks. The degree and timing of interstitial monitoring requirements depend on when the tank was installed. A tank installed after August 5, 2025, must use interstitial monitoring methods capable of continuously monitoring both the primary and secondary walls. As a practical matter, this typically means an inert gas, liquid, vacuum, or brine system. A tank installed on or after October 1, 2003, but before August 5, 2025, may either conduct continuous "dry space" interstitial monitoring or meet the aforementioned, more rigorous standard for post-August 5, 2025, tanks. For a tank installed before October 1, 2003, a compliance clock is now ticking: they must get into compliance with one of these monitoring options by May 7, 2027.

As for a single-walled UST system (which had been allowed to be installed until October 1, 2003), failure determination must be conducted every five (5) years beginning November 3, 2025, until the system reaches its applicable life expectancy.

Several new equipment standards must be met by May 7, 2027. These include under-dispenser containment sumps, piping containment sumps, and breakaway devices and shear valves or crash valves for dispensers.

Other operational requirements have also expanded. Postinstallation testing is now required for all UST systems, cathodic protection must be tested annually, and rectifiers on impressed current systems must be checked monthly.

UST System Closure: Now Similar to (d)-101 Standards

Previously, closure for UST systems subject to the (d)-1 rules was based on the closure standards in NFPA 30, with some limited additional gloss. It's now a new ballgame. As in the more complex (d)-101 rules, closure under (d)-1 is now specified in detail (sampling locations, analytical data quality/data usability evaluations, closure report standards, and more).

Key Changes to the (d)-101 Regulations

Performance Standards and Equipment Requirements

The revised (d)-101 regulations significantly expand performance standards for tanks, piping, dispensers, and containment systems. As with the (d)-1 regulations, the standards for interstitial monitoring are significantly more rigorous and are keyed to UST system installation date. The standards here are similar to those in (d)-1 but should be carefully scrutinized with respect to each particular situation.

The (d)-101 rules also include some unique wrinkles not found in the (d)-1 rules. For example, while a new tank installed after August 5, 2025, must conduct continuous interstitial monitoring of both primary and secondary containment, a narrow exception is provided to allow for "dry space" monitoring for tanks installed after May 7, 2025, that meet a long list of conditions. These conditions concern not only equipment and operation, but also location: the tank cannot be within an Aquifer Protection Area or within 1,000 feet of an off-site potable well.

Beyond the tank itself, the revised regulations include numerous new or expanded requirements for other UST system components. For example: dispensers must now be equipped with breakaway devices and shear valves or crash valves, underdispenser containment and piping sumps must be liquidtight and monitored, spill buckets must have at least five gallons of capacity, and dispensing hoses must be kept from contact with the ground when not in use (with an exception for marinas).

Expanded Testing and Inspection Obligations

New annual and three-year testing requirements apply across many UST system components. Monthly inspections must be conducted by Class B operators, while annual inspections must be completed by qualified third parties. Compliance with these obligations must be documented using new DEEP forms, which are outlined in the new consolidated notification and recordkeeping section in the revised regulations (RCSA 22a-449(d)-114) and are available on DEEP's website.

Containment, Overfill Protection and Release Detection

Both new and existing UST systems subject to (d)-101 face immediate equipment and operational requirements. While some standards here are similar to those in the (d)-1 regulations, others are more detailed and stringent. For example, overfill alarms for (d)-101 UST systems must be both audible and visual. As elsewhere, the regulations here will need to be reviewed in detail to ensure your compliance plan is complete.

Sump pump as shown by Fuels Market News

> "While still less complex than the (d)-101 rules, the revised (d)-1 rules now incorporate certain requirements previously limited to the (d)-101 rules."

"Release" and "Suspected Release": A Broader Net

One section of the revised (d)-101 regulations that deserves particular attention is the expanded definition of "release" and "suspected release." The regulations now specify a much wider range of "unusual operating conditions" that constitute a "suspected release," which would trigger investigation and reporting obligations. Some of these conditions (ex.: liquid in sumps that is "indicative of a potential release") highlight the need to ensure site personnel are aware of these new, more explicit requirements. The requirements also highlight the need for a systematic approach to assessing "unusual operating conditions," and the premium on clearly documenting why a particular condition has been determined not to be "indicative of a potential release."

The reference above to a release into a sump may cause some puzzlement: Isn't the purpose of secondary containment to prevent a release? That may have been a common understanding, but beware: the revised UST regulations (as well as DEEP's general-applicability release reporting regulations adopted in 2022) take a different approach. There, "release" is expressly defined to include a release into secondary containment. This point is likely worth highlighting to personnel involved with UST operations.

If an "unusual operating condition" or other potential "suspected release" indicator can't be favorably resolved, the UST system owner or operator must report the suspected release to DEEP within 24 hours after discovery of the condition or indicator. Stated otherwise, a UST system owner or operator has no more than 24 hours from discovery to internally investigate and, if appropriate, determine the condition or indicator does not in fact indicate a suspected release. If a report must be made to DEEP, requirements for specific further investigation and response actions also immediately kick in.

Connecticut Department of Energy & Environmental Protection

Release Response and Corrective Action: More Detailed, More Forms, Less Flexibility, Tighter Deadlines

The release response requirements, set out in revised RCSA 22a-449(d)-106, are lengthy and reflect extensive rewriting. As such, these requirements in particular require careful review to identify what's new or different. UST owners and operators should be aware that reporting timelines are now shorter than before; some that used to be "within 24 hours" are now "immediate" or "within one hour." The revised release response rules are also significantly more prescriptive than before, specifying response steps in detail and thereby reducing the professional discretion of the owner or operator's environmental consultant.

The revised rules also require a DEEP review of remediation that includes Monitored Natural Attenuation (MNA). In revising the regulations, DEEP clearly advised that it now disfavors MNA, in part due to pressure from DEEP's overseers at EPA. This is one of several signals of how the revised regulations seem geared towards a more conservative approach to remedy selection.

The release response protocol detailed by the revised regulations has significant ongoing documentation and reporting requirements. Many of these require the use of newly developed or updated DEEP forms, available on DEEP's website. The heightened documentation and reporting emphasis reflects DEEP's agency-wide efforts at more systematized, trackable, and publicly accessible remediation in Connecticut.

Lastly, some readers may be wondering how this new UST release remediation scheme relates to DEEP's new Release-Based Cleanup Regulations (RBCRs), which took effect on March 1, 2026. However, the RBCRs expressly do not apply to releases from a regulated UST. This carve-out reflects a policy choice by DEEP to keep UST cleanups governed by the UST regulations (which, as noted above, are based on a federal template). DEEP's intent here may be to avoid potential issues with EPA's approval of (d)-101 UST regulations and EPA's related delegation to DEEP the enforcement of the federal UST program.

Cleanup Contractors and Environmental Professionals

Under the revised (d)-101 regulations, UST owners and operators must now retain an "Environmental Professional" throughout the remediation process. That professional must be either a Licensed Environmental Professional (LEP) or a new category, a Permitted Environmental Professional (PEP). A PEP is a third party who has a DEEP permit issued under Conn. Gen. Stat. 22a-454 (a/k/a "454 permit") to do business as a release response contractor. The 454 permit requirement for such businesses has been on the books for a long while, but has not been consistently enforced. However, since revising the UST regulations, DEEP has been actively enforcing the requirement (in one case we're aware of, forcing a UST system owner/operator to halt soil excavation at an old UST release site by the owner/operator's longtime but non-454-permitted contractor).

Connecticut's designated environmental justice communities

Public Notice Obligations Shift to Owners and Operators

This is a good example of a small "buried hazard" that could create unwelcome headaches.

Where remedial action is required, the revised regulations have shifted responsibility for public notice from DEEP to the UST system owner or operator.

On the plus side, the rules identify various acceptable forms of notice and eliminate express references to public meetings.

On the minus side, the rules add complicated and practically unworkable requirements where the UST remediation site is located in an "environmental justice community" (a/k/a "EJ community"). The rules import this term wholesale from a state statute aimed primarily at large industrial facilities in complex permitting contexts. Determining whether a particular site is in an EJ community is not straightforward and includes counterintuitive legal wrinkles. For example, the EJ statute defines "EJ community" to include a city or town on a "distressed municipality" list updated annually by the Department of Economic and Community Development (DECD). But even after a municipality no longer meets the criteria for a "distressed municipality," it may still be regarded as one — and therefore also an EJ community — for several more years.

For another example, the UST regulations now require that for a remediation site in an EJ community the UST system owner or operator must provide public notice in all languages spoken by no less than15% of the residents within a half-mile of the site. There seems to be no practical way to determine this with any certainty (shy of digging into address-by-address data from the last U.S. census). As a result, UST system owners and operators may be forced to make some conservative guesses from general census data.

Investigation and Remediation Deadlines, with Automatic "Fees" (Read: Penalties)

One of the wholly new aspects of the revised regulations is the introduction of automatic, escalating "fees" tied to investigation and remediation timelines.

Essentially, these "fees" are penalties for failure to meet one-size-fits-all remediation deadlines and submission of related forms to DEEP. Failure to complete investigation and achieve applicable remediation standards for soil and other "impacted material" within one year of release discovery will trigger an annual $1,000 charge, escalating by $1,000 in each subsequent year to a maximum of $5,000 per year. Separate annual charges apply to post-remedial groundwater monitoring. Failure to achieve applicable groundwater standards within two years after achieving soil and other standards will trigger similar $1,000/year charges, with similar escalation up to $5,000/year.

Notably, these fees are purely schedule-driven and disregard cost-efficiency considerations in remediation. DEEP's response to public comments regarding the revised regulations makes plain that MNA is a particular target here.

Closure Requirements

UST system closure requirements under (d)-101 are now significantly more prescriptive. For example, individuals conducting closures must have HAZWOPER training and pass specific decommissioning exams. For closure assessment and sampling, the UST system owner or operator must hire a person with at least three years' experience and training, who must adhere to more detailed closure standards. As with all the other sections of the revised regulations, the level of new detail in these rules necessitates a close read.

Specified Penalties – Operational Noncompliance

Finally, primarily for (d)-101-regulated UST systems, there is now an entirely new set of pre-determined noncompliance penalties. (Note: These are codified outside the UST regulations, at RCSA 22a-6b-8(c).) The penalty amounts range from $100 to $1,000 for each of a dozen-plus types of noncompliance with UST systems requirements. Some of these penalties are specified as "per record" or "per UST system." However, others are stated as "per violation," which, depending on the context, may be less clear as to scope. Examples of violations targeted include: failure to submit certain notifications, a "false statement" in a UST notification form, failure to maintain red-tag disabling devices, late release reporting, lack of Class A, B and C operators, financial responsibility, and operating beyond life expectancy (including escalating penalties for each additional year).

Lastly, note that these amounts account only for the "gravity-based penalty component." Therefore, DEEP apparently still has authority to assess an additional "economic benefit penalty component," to offset what DEEP believes was the UST system owner's or operator's potential savings from noncompliance.

"… shift toward greater prescription, tighter timelines, and reduced flexibility."

Conclusion: Heightened Compliance Risk in a More Prescriptive Regime

For professionals familiar with Connecticut's UST programs, the 2025 revisions in many respects represent an unmistakable shift toward greater prescription, tighter timelines, and reduced flexibility. While some revised standards and organizational improvements are welcome, the revised regulatory framework warrants close attention to ensure your compliance program has been fully updated to keep pace with the revised rules.

WHY MARKETERS NEED TO SUPPORT THE ENERGY MARKETERS OF AMERICA'S MARKETER DEFENSE FUND

By Rob Underwood, Energy Marketers of America

Rob Underwood

In recent weeks, I've had several conversations with energy marketers on the need to support The Energy Marketers of America's (EMA's) Marketer Defense Fund (MDF). Unlike EMA's Small Business Committee PAC (which only accepts personal funds to support federal lawmakers), the MDF can accept corporate funds that are crucial to supplement EMA's lobbying efforts and federal lawsuits challenging government regulations. In 1993, Congress passed a law declaring that any money used for lobbying (e.g., EMA's Small Business Committee PAC) is not deductible for income tax purposes. Conversely, MDF donations are tax-deductible as a business expense but not as charitable giving.

Why Contribute to the MDF?

EPA Emissions Rules: The Energy Marketers of America has challenged several EPA final rules that impose stringent emission standards that significantly impact our industry by mandating electric vehicles (EVs).

- June 2024: Tailpipe emission reductions for heavy-duty vehicles (Phase 3) (2027–2032)
- June 2024: Tailpipe emission reductions for light-duty vehicles (2027–and later)
- June 2023: California waiver for Advanced Heavy-Duty Clean Trucks Regulation
- April 2023: *Amicus curiae* challenge to NHTSA Fuel-Economy Standards
- April 2022: Reinstatement of California waiver for Advanced Clean Cars (ACC), where 17 states plan to follow California
- December 2021: Tailpipe emissions reductions for light-duty vehicles rule (2023–2026)

Whether California can blaze its own trail on combating climate change also implicates the "major questions doctrine," which holds that courts should not defer to agencies on questions of "vast economic or political significance" without explicit Congressional authority to do so. The petition asks the Court to decide whether the Clean Air Act authorized California to regulate vehicle emissions to target a phenomenon like climate change, which has a global cause and effect.

Furthermore, MDF Funds Pay For:

- Support for crucial surveys and data collection
- PAC software support
- Support for local DC charities that involve Congress members
- Travel expenses for marketers who testify at regulatory/legislative hearings (flights, hotel, parking, taxis)
- EMA membership in key legislative and industry organizations, including the Small Business Legislative Council (SBLC), Transportation Energy Institute (TEI), National Association of Tobacco Outlets (NATO), and others

To have a larger financial stake in these ongoing legal actions, EMA needs to increase fundraising for MDF. Your contribution to the MDF helps defend your business interests against onerous regulations. Please donate using the EMA MDF Donation QR code.

EMA Marketer Defense Fund and Small Business Committee PAC *Make a difference on behalf of our industry through your support.*	EMA SBC POLITICAL ACTION COMMITTEE	EMA MARKETER DEFENSE FUND
Contributions go directly to legislators/candidates who support our industry issues	✓	
Contributions go towards lobbying on special projects in best interest of industry*		✓
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Tax deductible as business expense		✓
Tax deductible as charitable giving for income tax purposes		
Accept contributions by corporate check or credit card		✓
Accept contributions by personal check or credit card	✓	✓
Contribution amounts are limited by individual to a maximum of $5,000 per year	✓	
Contributions are limited to individuals who are members of an EMA Member Association	✓	
Partnerships and LLC's can contribute to the EMA SBC PAC, if they meet certain requirements**	✓	

**Please refer to MDF and PAC brochures for specific information on issues and special projects*

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"Your contribution to the MDF helps defend your business interests against onerous regulations."

BRINGING AI TO FOODSERVICE

ELIMINATING TEDIOUS TASKS AND OPTIMIZING EMPLOYEE HOURS ARE ONLY TWO OF THE POTENTIAL BENEFITS OF ADOPTING AI TECHNOLOGY.

Steve Holtz

By Steve Holtz, Holtz Media Consulting

A chef visited the trade show booth of Beyond Honeycomb, a technology and foodservice-equipment company based in South Korea, during the National Restaurant Association Show last May. He was clearly suspicious of the company's promise of "consistently chef-quality product" when cooking with its Grill X grilling robot.

Beyond Honeycomb spokesman Andy Shim tried to explain that the machine, driven by artificial intelligence (AI), "has a molecular sensor that senses ..."

The chef interrupted impatiently: "Oh, so the AI measures the temperature of the meat."

"No," Shim countered, "it doesn't detect the temperature level inside. It doesn't have to!"

This time, the chef begrudgingly listened to Shim's explanation of AI-measured Maillard reaction, doneness, and collagen levels before walking back to his own booth, befuddled and perhaps a little intimidated.

As AI slowly becomes reality in retailing, and indeed the rest of American life, the meshing of technology with food preparation remains a challenge for those schooled in the culinary arts. And while robotic inventions such as the $30,000 Grill X have made some inroads — having been deployed in about 150 locations around the world — most AI adoption in foodservice is coming at the back-office and operations levels.

Running a Better Business

"In retail — and especially convenience and foodservice — AI is less about futuristic experiences and more about running a better business, every day, at scale," said Mike Weber, Chief Growth Officer at software-as-a-service company Upshop, Austin, Texas.

That's certainly been the experience for Benjamin Lucky, a seasoned c-store foodservice expert who has helped build foodservice offers for a number of retailers, including Cal's Convenience, Dash In, and, most recently, 7-Eleven.

"The opportunity seems to be in the back office: IT people, the people doing the pricebook, anything that can help them move things along faster, because it is tedious work," he said. "With some of the programs that are out there now, they can spit out a degree of analysis that maybe people may not have thought of."

It's this idea of letting the technology show users where it can be useful that is guiding retail tech developer Diebold Nixdorf in its journey through store-level AI.

"We are seeing a lot of AI being either tested or implemented [in quick-service restaurants] around two areas: optimization of operations within the restaurant to drive autonomy of process or to catch loss within that environment," said Matt Redwood, Vice President of Retail Technology. "We find that there is a lot of food waste … You can use computer vision to identify that maybe something has been left out of the fridge and it shouldn't be, and [you can] alert somebody to put it back. You can alert against things that are being thrown away unnecessarily."

The opportunities to explore a variety of uses of the technology appear to be endless, from preventing waste and theft to data analysis and employee scheduling.

Parker's Kitchen is one of the few retailers that has reported finding predictive analytics an opportunity to improve kitchen prep.

"We've been using artificial intelligence in our kitchens for a long time," founder and Executive Chairman Greg Parker said during a Vision Group Network convenience leaders virtual roundtable in 2023. "That gives us predictive analytics to know how many chicken tenders to drop or different things to do in our kitchens, which I think is highly effective."

Interestingly, however, most high-profile uses of AI in foodservice are happening at the drive-through.

Made to Order?

McDonald's has tested AI solutions to battle growing wait times at drive-through windows during the lunch rush. These solutions included using AI-driven edge computing, generative voice ordering, dynamic promotions, and predictive maintenance, according to a report by learning platform DigitalDefynd. The results: Wait times fell by an average of 27 seconds, ordering accuracy improved, ticket values grew, and downtime decreased.

"McDonald's journey illustrates that successful AI adoption is less about dazzling novelty and more about disciplined scale, measurable payback, and relentless iteration," the report concluded. "McDonald's provides a blueprint for leaders evaluating their AI road maps: Start with concrete pain points, codesign with frontline teams, pilot quickly, and scale only when the numbers prove out."

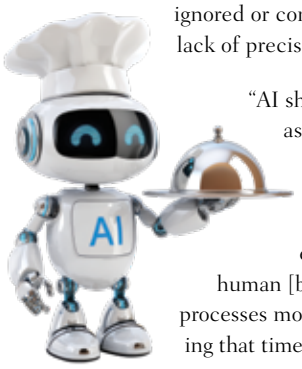
Meanwhile, Yum! Brands' Taco Bell began testing Voice AI ordering at the drive-through in 2023. Today, it is used at more than 500 of its 8,000 locations. In August, it was suggested the QSR might slow the rollout of the technology after consumer trolls toyed with the systems, sometimes ordering thousands of cups of water, for example, to force errors for the sake of social media content.

But Yum! Brands CEO Chris Turner said such events illustrate exactly the power of AI: learning from experiences and adjusting operations. He remains a proponent of the technology, which he said increased sales by 14% over the previous quarter in stores where it was implemented.

It makes the job of manning the drive-through "so much easier," he said on a September episode of Mad Money on CNBC. "And that's why in restaurants where we have Voice AI deployed, we see lower turnover, because it's making those jobs easier to do." At the same time, it's creating a more seamless experience for customers and employees, he said.

Keeping It Human

Most proponents of AI agree the adoption of new technology should not be about cutting staff to save money. Rather, they say efficiency and simplification allow employees to serve more customers or address tasks that typically get ignored or completed with a lack of precision.



"AI shouldn't be seen as the replacement for humans," said Redwood. "It's a way of enhancing the human [by] making the processes more efficient, using that time more effectively, doing more with less, and removing waste from either the process or the situation.

"It's a tool. It's a bit like using Google instead of an encyclopedia to look something up. It's faster. It's more efficient. It means that you've got more time to do what you need to do."

Weber of Upshop echoes that sentiment.

"AI should not replace human judgment or operational expertise. It should augment it," he said. "Over time, AI will become a foundational layer across most business functions — similar to how cloud computing or mobile technology did — quietly embedded rather than visibly separate."

> "AI is less about futuristic experiences and more about running a better business, every day, at scale."

Upshop offers an AI-powered platform for retail that is focused on executing plans correctly, keeping shelves and foodservice programs in stock, and reducing waste and friction for store teams.

"The businesses that win will be the ones that use AI to improve everyday decisions, trust it where it consistently performs, and keep humans focused on strategy, creativity, and exceptions," Weber said.

Lucky, however, fears that over time, executive teams will primarily grasp at AI innovation as a way to cut costs, meaning having fewer employees. When the concept "leaves the realm of the ideal," he said, in reality, it will become another tool used to simply improve profits.

"[Retail executives] want to see margin. They want to see price. They don't care about the use occasions or what the guest is thinking," he said. "They're just looking at it thinking, 'I need to sell this. Therefore, I'm going to do everything I can to sell it,' instead of, 'I made this for you.'"

To that end, Shahan Ohanessian, founder and CEO of VenHub Global, has dedicated much of his career to removing humans from the retail environment. With his latest venture, he wants AI technology to do all the work, short of stocking the shelves. He is an engineer and tech developer who had a hand in creating the Amazon Go and Amazon Fresh cashierless retail concepts.

"We have smart cars. We have smartphones. We have smart homes. But we don't have any smart retail," he said in describing his mission with VenHub. "I want a store that is super customer-friendly. I want it to be fast and smart, safe and secure, open 24 hours a day, easily installed, remotely managed with no employees, and have a very low cost of entry [with] high profit margins. And I want it to be in every vertical."

VenHub's initial concept is an 800-square-foot, fully enclosed vending machine that is operated by two robotic arms named Barb and Peter. Shopping is done via an app, and items are picked up from a collection box in the unit.

"All of your interactions with the smart store are via a mobile app," Ohanessian said. "[Customers] can see the inventory. They can order whatever they wish. If they need support, they click on the support button and get instantaneous support, and that can be AI or human support, depending on what they request."

At this point, foodservice is limited to packaged foods and snacks. However, the AI will "learn the neighborhood," he said. "It understands what the neighborhood is looking for. If there's product A vs. product B, after a while, [the store] will tell you, 'Stop ordering product A; your customers just want product B.'"

Finding Middle Ground

Meanwhile, Darren Rebelez, Chairman, President and CEO of Ankeny, Iowa-based Casey's General Stores, says the company has found a balance between reducing store hours worked and sustaining employee satisfaction.

Casey's began testing SYNQ3 AI solutions in 2022, with the goal of boosting its off-premises food business. The "autonomous, conversational AI ordering technology" SYNQ Voice greets guests, provides upsell suggestions, and takes orders, with

connections to both Casey's point-of-sale system and its loyalty program, all without requiring any intervention from Casey's employees.

When discussing such advancements, Casey's typically acknowledges it under the more mundane title of providing "efficiencies in labor hours." Rebelez said such efficiencies usually come from listening to store employees through its Frontline Advisory Board and its Continuous Improvement Team.

The team's "sole purpose is to go into stores and try to make the job of a team member easier to execute," he said during an episode of the "Future of Convenience" podcast in March 2025. "In some cases, that's moving work upstream; in other cases, that's just eliminating it altogether or finding a different way of doing it where it's easier. And as a result of that, we've been able to reduce our same-store labor hours for eight consecutive quarters."

Concurrently, he said, both Casey's employee-engagement and guest-satisfaction scores have improved.

"At the same time, we're removing some labor, we're leaving some extra labor in the store in the form of slack," he said. "So that a team member actually feels like they're not working as hard ... It's made us a more efficient organization, but at the same time more effective."

Beyond Science Fiction

While the high-profile AI tools that exist today are getting positive results, executives in the tech development space say the future of AI in retailing is bright as younger advocates enter the workforce.

"The reality is, [AI is] such a common part of life now and of every aspect of the industry that every [college] degree will probably have an AI module bolted on," said Redwood of Diebold Nixdorf. "Because it doesn't matter where you work, who you work for, what industry, what role — there will be AI playing a part in that. Whether it's generative [AI] or computer vision, or machine learning, it will be somewhere."

And industry veterans collaborating with these younger employees raised on AI is what it'll take to make true innovation and adaptability happen, said Bill Wade, a longtime product manager for PDI Technologies.

"It's going to be a combination of both. It's going to be the people who haven't been in the industry so long that they've become calcified in terms of how they approach solving problems," said Wade, who was inducted into the Conexxus Technology Hall of Fame in January. "Combine that with [younger] people who have been using AI long enough that they've got a knowledge base operating at that intuitive level" and who automatically use it in everything they touch, he said.

In other words, if you want to stop hearing about AI, you're probably out of luck. Because it's quickly becoming part of every business decision being made.

Article courtesy of the National Association of Convenience Stores

VenHub Global opened its newest Smart Store at Los Angeles Union Station in November.

BYTE by Yum!™

YUM! BRANDS: BEYOND THE DRIVE-THROUGH

Taco Bell has been one of the most vocal proponents of artificial intelligence (AI) voice technology, using it at the drive-throughs of more than 500 of its 8,000 U.S. restaurant locations. But its parent company, Yum! Brands, is putting AI to work in multiple other ways to improve operations and store upkeep. ByteByYum! is an AI-powered, comprehensive software-as-a-service platform intended to "connect orders, teams, and systems — so you can run smarter, serve faster, and scale effortlessly," the company said.

The elements of ByteByYum! include:

- **Byte Connect:** A product that streamlines order and menu integration with third-party delivery partners. It's currently in use at U.S. KFC locations, and it will be added to U.S. Taco Bell sites this year.
- **Byte Coach:** Delivers AI recommendations to store managers. It's been deployed to more than 28,000 restaurants across the Yum! system.
- **Byte Commerce:** A scalable and global web and mobile app ordering platform. It enables viral promotions or daily drops to drive high transaction velocity, such as Pizza Hut's $2 Personal Pan.

And more are on the way, said Ranjith Roy, Chief Financial Officer.

"We are excited about using AI at the enterprise level to build Byte in a more efficient manner," Roy said. "Currently, one-third of our developers are regularly using AI developer tools and realizing significant productivity gains. By early 2026, substantially all of our Byte software developers will be using AI tools to write better, safer, and more efficient code for the Byte platform."

SAVE THE DATES

CEMA GOLF OUTING

June 15, 2026
TPC River Highlands

We return this year to the TPC River Highlands in Cromwell, Connecticut — the site of the Travelers Championship. The Travelers is Connecticut's only top-tier professional sports event (sorry, minor league teams!), which will be held just 10 days after CEMA's golf outing on the same course that the pros will be playing on. Experience a professional-level golf venue at our outing this year on Monday, June 15. Watch for updates at www.cemagolf.weebly.com.

SOUTHERN NEW ENGLAND ENERGY CONFERENCE

September 14–15, 2026
Newport, RI

We return to our perennial favorite venue for the Southern New England Energy Conference and CEMA's Annual Meeting — the Newport Marriott in Newport, Rhode Island. Our conference is known for its extensive education offerings for industry management and top keynote speakers. Co-sponsored by CEMA, the Massachusetts Energy Marketers Association, the Energy Marketers Association of Rhode Island, the NY State Energy Coalition, and this year by NEFI, too. Watch for updates at www.sneec.weebly.com.

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All Carlin residential liquid fuel burners manufactured November 20, 2023 and later are UL Listed for use with bio blends up to and including B100. Scan the QR code above or visit carlincombustion.com/b100 for more information.