CONCORD MUNICIPAL LIGHT PLANT
ELECTRIC | BROADBAND | ENERGY MANAGEMENT

Date: October 2, 2025

To: Municipal Light Board: Warren Leon, John Dalton, Brian Foulds, Bianca Taylor and Chris Schaffner

From: Jason Bulger, CMLP Director

Subject: Agenda for virtual Light Board meeting on **Wed., Oct. 8, 2025, at 7:30 A.M.** (link below)

7:30 AM	1.	**Call to Order**			
7:30 AM	2.	**Meetings and Minutes**	5 Minutes	Chair	Vote

- Vote to approve the regular session minutes of September 23, 2025.

Upcoming Meetings:
Oct 29, 2025; Nov 12, 2025; Dec 10, 2025; Jan 14, 2026; Feb 11, 2026; Mar 11, 2026

7:35 AM	3.	**ETS Background**	15 Minutes	Asst. Dir.	Information
7:50 AM	4.	**Suspend reg. meeting and open rate hearing**	60 Minutes	Asst. Dir.	Vote

Requires a motion, a second, and roll call vote

Background: As part of the development of new rates, Utility Financial Solutions (UFS) has been tasked with providing recommendations regarding a dedicated rate for those customers with Electro Thermal Storage (ETS) heating systems.

Purpose: To discuss and receive public comment on the R-3 Residential Off Peak (ETS) rate, with a vote to follow.

8:50 AM	5.	**Director's Update**	10 Minutes	Director	Information
9:00 AM	6.	**Liaison & Public Comments**	5 Minutes	Chair	Information
9:05 AM	7.	**Adjourn**			

Distribution: Select Board (1 copy)

Kerry Lafleur	Joe Repoff	Laura Scott	Nan Okarma
Dale Hartling	Cameron McKennitt	Don Kupka	

Join Zoom Meeting
https://us02web.zoom.us/j/83853970051?pwd=akVzemJRQk8vNTJRUnNlOS9NNDFuQT09

Meeting ID: 838 5397 0051
Passcode: 661712

1175 ELM STREET, PO BOX 1029 | CONCORD, MA 01742-1029 | T: 978.318.3101 | F: 978.318.3105

Link to view recordings of previous Light Board Meetings:
https://www.youtube.com/playlist?list=PL1TTzrWEKOOn0RlJ2MdE2SnNZMWYeoeat

Link to view the Director's Updates (in meeting packets):
https://concordma.gov/1106/Municipal-Light-Board

Link to view the Broadband Monthly Updates:
https://www.concordma.gov/3148/Monthly-Updates

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Concord Municipal Light Board Minutes

September 23, 2025

Draft

Pursuant to a notice duly filed with the Town Clerk, a meeting of the Concord Municipal Light Board was held on Tuesday, September 23, 2025, at 7:30 am, via a Zoom meeting. Present were Board Members: Warren Leon, John Dalton, Brian Foulds, Bianca Taylor, and Chris Schaffner. Also in attendance were Jason Bulger, CMLP Director; Laura Scott, Assistant Director of Power Supply and Energy Management; Joe Repoff, Assistant Director of Engineering and Operations; Donna De Gray, Customer Service Supervisor; Karin Farrow, Office Administrator; Kerry Lafleur, Town Manager; Cameron McKennitt, Select Board liaison to the Light Board; Don Kupka, Finance Committee Liaison to the Light Board; and residents, Brad Hubbard-Nelson, Karlen Reed, Andy Puchrik and Pamela Dritt.

Note definitions for acronyms used in these minutes:

- **CMLP**: Concord Municipal Light Plant
- **GSEP**: Gas System Enhancement Plan
- **TOD**: Time of Day

CALL TO ORDER

Mr. Leon called the meeting to order at 7:31AM. Meeting recording will be posted to the Minuteman Media YouTube page as soon as it is available.[1]

MEETINGS & MINUTES (0:16)

Mr. Dalton moved to approve the minutes, as distributed, for 8/13, 8/26, and 9/10/2025. Mr. Schaffner provided the second. The Board voted 5-0 in favor of approving the minutes.

TIME-OF-DAY IMPLEMENTATION SCHEDULE (1:15)

Director Jason Bulger presented an update on the implementation schedule, noting that staff were preparing outreach, bill design changes, and training. Multiple new utility billing programs (stormwater and solid waste/recycling) were happening in parallel, straining staff capacity. Rates had been voted in early July, but due to an issue with a calculation by the cost-of-service study consultant and time needed to settle on the solar compensation, rates weren't finalized until early September. A new marketing firm is coming online to assist, and if the January 2026 go-live is kept, staff are concerned with meeting the goals for implementation. Since rates for 2026 are revenue neutral, there is no need to implement them on January 1 or change them if they are not implemented on that date.

Mr. Leon expressed concern that January 1 was too rushed and supported April 1. Mr. Dalton echoed Mr. Leon and mentioned that April is a shoulder season and might make the transition smoother. Mr. Schaffner agreed and said April works better for communication and customer focus. Mr. Foulds agreed and also suggested a public forum for customer education sometime before the April go-live.

[1] Minuteman Media YouTube Link: https://www.youtube.com/watch?v=GGvDw8O6eUw

Mr. Foulds moved that the Board change the target date from January 1 to April 1, 2026 for the new Time-of-Day rates. With a second by Ms. Taylor, the Board voted 5-0 in favor of the motion.

NETWORKED GEOTHERMAL (27:33)
Brad Hubbard-Nelson, from the Networked Geothermal subcommittee of the Climate Action Committee, gave a presentation. He explained:

- Geothermal systems provide efficient, consistent heating and cooling by drawing heat/cooling from the ground. While individual systems are often costly, networked geothermal creates district-style shared systems that reduce costs through scale and balance diverse building loads. From a climate perspective, electrifying buildings quickly is essential to meet the state's 85% reduction target. Air-source heat pumps alone could create large winter peaks; geothermal could moderate peak demand and lower utility costs.
- A sample timeline was presented with the goal of a pilot between 2027-2028, and a geothermal network for MCI Concord between 2027-2030.
- Pilot projects in Massachusetts (notably in Framingham with Eversource) demonstrated strong performance and customer satisfaction. Costs averaged ~$40,000 per home for retrofit work, largely tied to ductwork and interior changes, though costs should decline with experience and incentives.
- Geothermal networks may also offer workforce benefits, helping gas utilities transition away from pipeline replacement toward thermal energy services. Recent legislation (2024 climate bill) allows gas system enhancement funds to be redirected toward non-pipeline alternatives such as geothermal.
- Potential Concord opportunities include GSEP-designated areas, Thoreau Depot, Crescent and Pond Streets, Emerson Hospital and Newbury Court expansions, Concord Greene multifamily housing, and especially the MCI Concord redevelopment, which could be a model zero-carbon campus.

Mr. Hubbard-Nelson wants to understand the benefits of geothermal for CMLP and residents, as well as get assistance with business and technology modeling in the coming year. CAC and the Networked Geothermal Subcommittee seek to launch a pilot program somewhere in Concord and would like CMLP to work with MCI Concord planners to design a geothermal network as the preferred option.

Board Discussion & Commitments:

- Ms. Taylor thought the timeline seemed long, and she expressed enthusiasm tempered with concern that CMLP's mission is delivering electricity, not managing construction projects. She suggested CAC or volunteers could take the lead in procurement assistance, with Light Plant staff supporting at an advisory level. Also noted that retrofit cost estimates may come down as technologies like horizontal geothermal loops improve.
- Mr. Schaffner was strongly supportive, citing his professional experience with campus-scale network geothermal. Emphasized the MCI Concord redevelopment as a once-in-a-generation opportunity, especially given nearby thermal resources (river, wastewater plant). He also suggested encouraging private developers (e.g., Newbury Court) to adopt geothermal even if not networked. He did wonder whether National Grid or CMLP should own/operate such systems.
- Mr. Foulds supported further study and exploration and raised the need to clarify the Light Plant's role, whether to sell electricity, thermal energy, or simply act as a facilitator. He wondered if CMLP's role might be expanded in areas where there is no natural gas infrastructure. Mr. Foulds pointed out that the $40,000 price tag was going to be the one item that people take away from the presentation.

- Mr. Dalton was supportive of dedicating resources to furthering the exploration of the feasibility of expanded networked geothermal. He mentioned that it probably made the most sense where there was higher population density, and there are challenging business and commercial issues to sort through.
- Mr. Leon thanked Mr. Hubbard-Nelson for the presentation and summarized that the Board was supportive of ongoing exploration but did not envision CMLP taking on a lead development role at this time. He would give the highest priority to new construction and emphasized that staff participation in CAC working groups and coordination with external partners would be appropriate next steps.

MIDDLE SCHOOL SOLAR & STORAGE PROJECT UPDATES (1:01:43)
Mr. Bulger provided a comprehensive update on the Concord Middle School solar and storage initiative. He reminded the Board that it had previously authorized $7.5 million for the project, which envisioned approximately 1.2 MW of rooftop and canopy solar along with 1-2 MW / 4 MWh of battery storage. Importantly, the project is funded by the Light Plant and does not fall under the school's construction budget, though coordination with the school building project has been ongoing.

Mr. Bulger explained that when Town Meeting originally approved the funding, the intention was to proceed with installation concurrent with school construction. However, feedback from peer communities and the challenges of building coordination led staff to postpone until school construction was completed. Next, the School Committee required several months before agreeing to a site license.

He noted that the project was bid under Massachusetts General Laws Chapter 30, Section 39M, which requires acceptance of the lowest eligible and responsible bidder. This limits the Light Plant's flexibility to consider non-price factors, and ultimately only two responsive bids were received.

Mr. Bulger described the scope in terms of a base bid for rooftop solar and optional add-ons for a canopy system, as well as alternates that would allow for domestic content in order to qualify for full Inflation Reduction Act and Investment Tax Credit incentives. He explained that soil conditions on the school site created challenges for canopy structures, requiring deeper footings and driving costs higher. Rooftop solar was originally estimated at approximately $2.50 per watt, while canopy installations were closer to $3.50 per watt.

The inclusion of battery storage has been a central feature of the project design. Mr. Bulger explained that the rooftop system could technically proceed without batteries, but the canopy portion, if pursued, would necessitate storage to manage the resulting excess power. He added that storage also improves the economics of the overall project by providing demand reduction and resilience benefits, regardless of whether the canopy is installed. Locating the battery on the site has presented challenges due to its proximity to both the gymnasium and a gas line, as well as environmental considerations that remain under review.

The Board then discussed the implications of these findings.

- Mr. Foulds inquired how the project would satisfy the School Committee's net zero requirement if the canopy option were not pursued. Mr. Bulger responded that higher-efficiency panels and the use of off-site solar offsets could be considered as alternatives to reach net zero.
- Mr. Schaffner observed that other communities have successfully sited batteries at schools, and emphasized that Concord should focus on locating solar where it is most cost-effective rather than being bound to preconceived options.
- Mr. Dalton was concerned about the low level of bidder interest and suggested that the Board and staff

review lessons learned from the public bid process.

- Ms. Taylor asked whether electric vehicle chargers might serve as partial substitutes for batteries in buffering demand. Mr. Bulger clarified that chargers could play a role in load management but could not replace the resilience and peak-shaving benefits of battery storage.
- Mr. Leon sought clarification on the battery economics and whether the system made sense financially if pursued as a standalone element. Mr. Bulger confirmed that batteries add value both in resilience and in reducing peak demand charges, and thus support the economics of the overall project.

Mr. Leon thanked Mr. Bulger for the detailed presentation. He noted that the update was for the Board's information only and did not require a vote at this stage, but emphasized that the Light Plant and the School Committee will need to carefully balance cost, performance, and policy goals in determining how the project should proceed.

LIASION & PUBLIC COMMENTS (1:27:33)

- Pamela Dritt strongly supported networked geothermal at Concord Greene, citing desire to move from gas to heat pumps. She urged consideration of long-term savings vs. upfront costs and highlighted additional benefits: air conditioning for older buildings, resilience during climate-driven heat waves, and externalized community savings. Finally, she advocated for shifting terminology from "net zero" to "zero carbon."

ADJOURN (1:30:59)

Ms. Taylor made a motion to adjourn the meeting. Mr. Dalton offered a second, and with a unanimous vote in the affirmative, the meeting was adjourned at 9:02AM.

Respectfully submitted,
Mr. Dalton, Clerk

Concord Municipal Light Plant Updates

October 8, 2025

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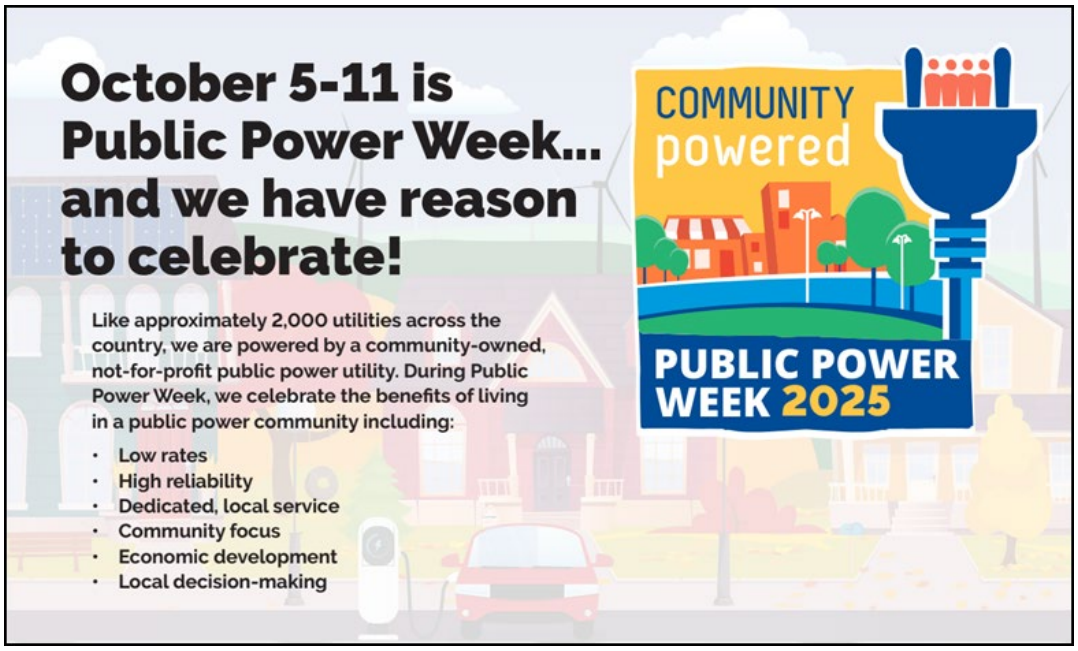
Organization and Industry

- **Public Power Week**
  October 5-11 is Public Power Week! CMLP will have a staff luncheon on Thursday, October 9th, and we will be promoting Public Power however we can.



- **ISO-NE Advances Major Capacity Market Reforms**
  ISO New England (ISO-NE) held several committee meetings in September to advance its proposed Capacity Auction Reforms (CAR). These reforms aim to transition the market from a three-year Forward Capacity Auction (FCA) to a prompt, seasonal market approach. This change is intended to improve reliability by better reflecting the distinct capacity challenges of New England's winter and summer peaks. Key discussions in September focused on the new accreditation rules that will govern how different resources (like solar, wind, and batteries) are valued in the market. Learn more here: https://www.iso-ne.com/committees/key-projects/capacity-auction-reforms-key-project

- **New England Offshore Wind Procurement Delayed Until 2026**
  The Massachusetts Department of Energy Resources (DOER) has officially delayed the launch of its next (Round 5) competitive offshore wind solicitation until at least 2026. The delay is attributed to the unresolved contract negotiations from the previous Round 4 procurement, which remain incomplete due to market volatility and uncertainties over federal permitting policy. State officials noted that the lessons learned from the current, stalled negotiations must be integrated before launching a new solicitation to ensure cost-effectiveness for ratepayers and project viability.

- **NERC Seeks Input on New Operational Reliability Standards**
  The North American Electric Reliability Corporation (NERC) continued its work on implementing FERC Order No. 901, focusing on new reliability standards for Inverter-Based Resources (IBRs). In September, NERC concluded its nomination period for the drafting team of Project 2025-03, which will develop standards to ensure IBR performance and behavior are accurately included in operational assessments and real-time grid monitoring. This is a critical step in adapting NERC standards to the modern, inverter-heavy power grid.

- **Massachusetts finalized regulations for the Solar Massachusetts Renewable Target (SMART 3.0) program on September 3, 2025.**
  - Effective Date: The revised program changes are set to become effective on September 12, 2025.
  - Program Start: The first, short program year for SMART 3.0 will run from October 15, 2025, to December 31, 2025.
  - Key Change: SMART 3.0 implements an annual assessment mechanism to set program capacity and incentive rates, helping to balance grid needs, ratepayer impacts, and climate goals.

- **Energy Facilities Siting Board Works to Streamline Clean Energy Permitting**
  The Massachusetts Energy Facilities Siting Board (EFSB) hosted a crucial meeting on September 8, 2025, to review new draft regulations aimed at dramatically streamlining the permitting process for clean energy facilities across the Commonwealth. These new rules, formally proposed on September 12, are expected to significantly change the landscape for municipal light departments and developers by combining and shortening local permits for certain renewable projects. This effort, mandated by recent state climate legislation, is

intended to accelerate project timelines by removing regulatory hurdles, though the board is seeking extensive public input before the final regulations are scheduled to take effect in the Spring of 2026.

- **ISO-NE Advances Major Long-Term Transmission Planning Initiative**
  ISO New England (ISO-NE) took a critical step in September by completing the submission phase for its inaugural Longer-Term Transmission Planning Process (LTTP) Request for Proposals (RFP). The LTTP is a major regional initiative designed to secure the New England grid's future reliability by identifying and funding large-scale transmission solutions that can deliver clean power from new renewable energy sources, particularly those bottlenecked in northern Maine. The grid operator is now preparing to publicly summarize the submitted bids in November 2025, which will kick off the stakeholder review process to select projects that best serve the region's energy needs and deliver cost-effective benefits to consumers.

Energy Management

- CMLP advertised Sun Day, an event organized by the Town's Climate Action Committee, in an e-newsletter to CMLP's customers. CMLP's Energy Efficiency & Electrification Specialist, heating coaching coaches and an EV Specialist staffed a table at Sun Day on September 21st.
- In preparation for Sun Day, Energy Management staff worked with GIS to bring the map of Concord solar installations on our website up to date.

- The campaign that CMLP ran in August to publicize Drive & Save, our EV savings and comparison tool, resulted in a substantial increase in the number of Wattplan sessions completed in August, 46, compared to an average of 5 in each of the prior months of the year.

Battery Storage and Solar Project Updates

- The middle school solar bids were opened on September 10. Staff met to review the bids (2) and began to vet the submissions for compliance with the IFB requirements.
- CMLP submitted a PP-5 to ISO-New England on adding energy storage at the landfill to be paired with additional solar. This will likely be a Level III study, and could involve Concord in a Transitional Cluster Study (TCS) involving other Distributed Energy Resources in the vicinity of our distribution system. These clusters studies, outlined in FERC order 2023, typically stretch 6-12 months.

Finance Updates

- The annual Department of Public Utilities return was completed and filed in September.
- Nan attended the annual user conference for NISC in Louisville, KY.

Engineering and Operations

- Met with stakeholders at MCI-Concord to discuss possible options for powering the sewage plant.
- Ordered additional gateway enclosures for Eaton smart grid system.
- Continued to work on proposed changes to the service order process.
- Investigated a damaged transformer on Thoreau St.
- Met with National Grid regarding a regulating station on Main St.
- Discussed a pole relocation with Concord Public Works at the Main St./Baker St. intersection
- Worked on the Cambridge Turnpike undergrounding extension. Found damaged conduit that needs to be addressed.
- Assisted with the DPU annual return information collection.

- Addressed issues with a Level III charger at the Rideout. Components were replaced.
- Reviewing a proposal to conduct a pole survey for our entire system.

Power Supply

- Power Supply staff trained key staff on the new solar net billing rate that will accompany Time-of-Day rates.
- Laura Scott attended the annual PURMA (Public Utility Risk Management Association) meeting.
- In coordination with Energy New England, staff developed the 2026 Power Supply cost forecast, which is instrumental in completing the annual forecast.
- CMLP has executed an enabling agreement with PowerDash – a prerequisite to processing customer Donate Your RECs payments. PowerDash will be the aggregator that reports customers' generation to the GIS system on behalf of CMLP.
- Conducted an analysis of rebate processing to determine whether or not to outsource this workflow to a third party. We decided to keep this work in-house for 2026.
- Staff spent time addressing customer issues and questions related to the Connected Homes program as well as general rate questions.

Customer Service

- Jennifer attended the annual user conference for NISC in Louisville, KY.
- The team continues to work with Public Works to spin up the Stormwater and Solid Waste/Recycling programs and integration with the billing system. The curbside program is expected to launch in October 2025.
- The Customer Service team has worked on planning for Public Power Week.

TOWN OF CONCORD
MUNICIPAL UTILITIES
ELECTRIC | WATER | SEWER | TELECOMMUNICATIONS

September 2025 – Broadband Updates

Concord Broadband is pleased to share the following updates and information from the past month. Please do not hesitate to contact us at broadband@concordma.gov should you have any questions, concerns, or feedback.

Operations

- The team has been working on an upgrade to the Master Address Table properties to get better information in the hands of end users.
- We have finally completed the spin-up of our new ISP. We have a dedicated 10GB/s pipe with the ability to burst up to 100GB/s.
- The whole Broadband team has been working on getting network access for the Peabody school to support Town department access. Phones and network materials are being readied.
- We took a maintenance window on 9/10 to remove some older networking switches from our environment. We thank our customers for their patience, and we thank the staff member who was up at 3am to complete this work.
- All of the materials from the XGS-PON procurement have been received. Staff are working on racking those new switches and getting them accessible by the vendor for programming. The team has commenced weekly project meetings.
- Additional training sessions will be held for staff on XGS-PON and administration by the software that manages it.

Powering Our Digital Future: Local Fiber and the Calix Advantage

We've all experienced the frustration of a buffering video, a dropped video call, or slow downloads. In today's world, fast, reliable internet isn't a luxury—it's essential for work, education, healthcare, and staying connected. That's why your municipal fiber broadband network is such a critical investment in our community's future.

As your local network continues to expand and evolve, we want to highlight the technology that makes our service truly exceptional, ensuring it's ready not just for today's needs, but for the innovations of tomorrow.

Upcoming Maintenance

There will be additional maintenance windows as we look to install the next generation of XGS-PON equipment. This will be advertised to all customers if it is expected to be customer-impacting work.

Learn more on our maintenance page here:

https://concordma.gov/3144/Broadband-Maintenance

The Power of Local Ownership and Fiber

Our municipal network is different from other providers because it is built by and for our community. This local ownership means our primary focus is on service, reliability, and local needs, not distant shareholder profits.

Our network uses Fiber-to-the-Home (FTTH) technology, running a dedicated optical fiber line directly to your house. This fiber infrastructure is inherently superior to older technologies like copper-based DSL or traditional cable. Fiber uses light to transmit data, allowing for symmetrical speeds—meaning your upload speed is as fast as your download speed—and offering virtually limitless capacity for future speed upgrades. It is an investment that truly future-proofs our community's connectivity for decades.

Partnering with Calix for a Next-Generation Experience

To deliver this world-class service, we've partnered with Calix, a leading technology provider focused on creating exceptional broadband experiences. This partnership is central to ensuring our network is not just fast, but also smart, efficient, and easy to manage.

Calix provides the core intelligent platform that powers our fiber infrastructure, from the equipment in our central office to the optical networking terminal in your home. This integrated approach offers several key benefits to you, the subscriber:

- Ultimate Reliability and Simplicity: Calix's systems are designed to minimize complexity, allowing our team to monitor, manage, and maintain the network more efficiently. This operational efficiency translates directly into higher uptime and quicker resolution of any issues.
- The Smart Home Experience: With Calix-powered Wi-Fi, you get a premium in-home experience. Managed Wi-Fi services allow us to provide you with a powerful, comprehensive Wi-Fi solution that ensures fast speeds reach every corner of your home. You gain access to user-friendly mobile apps that put you in control of your home network, allowing you to manage parental controls, security features, and guest networks easily.
- Ready for Tomorrow: Calix is at the forefront of broadband technology, including advancements like the testing of 50G-PON technology. This focus on continuous innovation means our network is built on a platform that can seamlessly integrate the next generation of speed and services without major overhauls.

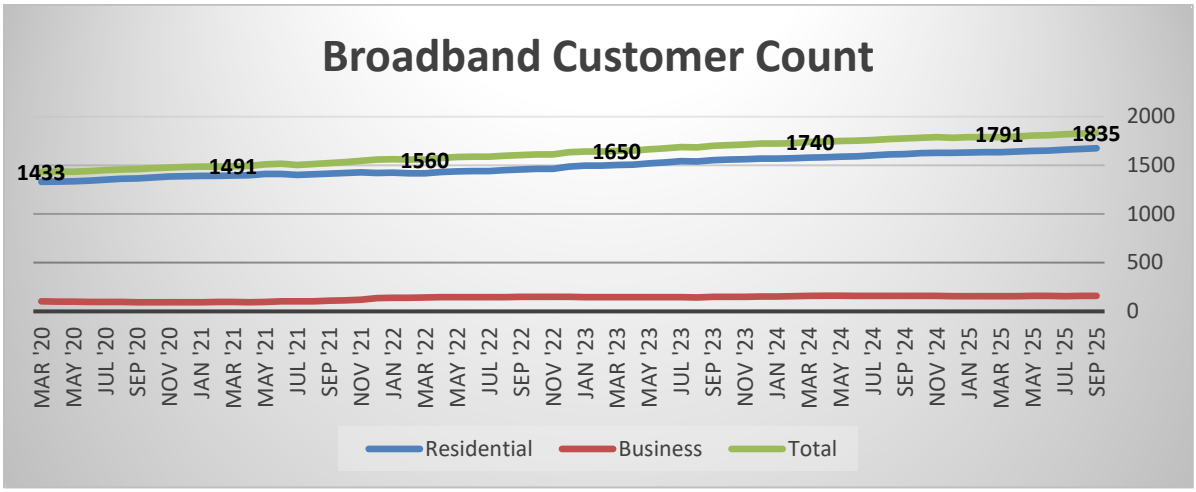
Timely Connection: Staying Safe and Secure Online

In today's digital landscape, connectivity goes beyond speed—it includes security. Now, more than ever, with many working and learning from home, the security features built into our Calix-powered system are highly relevant.

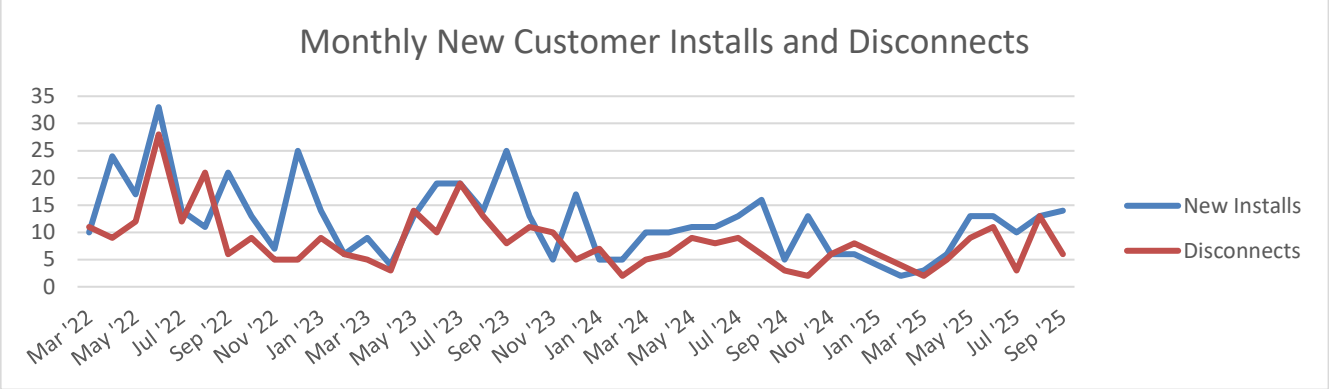
Through the Calix platform, we can offer managed services that provide advanced network-level security and parental controls. This protects all connected devices in your home from online threats without needing to install separate software on every phone or computer. Having your network provider integrate security is a timely feature that offers peace of mind in an increasingly connected world.

Our local fiber network, powered by Calix, is more than just an internet connection; it's a foundation for growth, security, and an enhanced quality of life for all residents. We're proud to bring this critical infrastructure to our community.

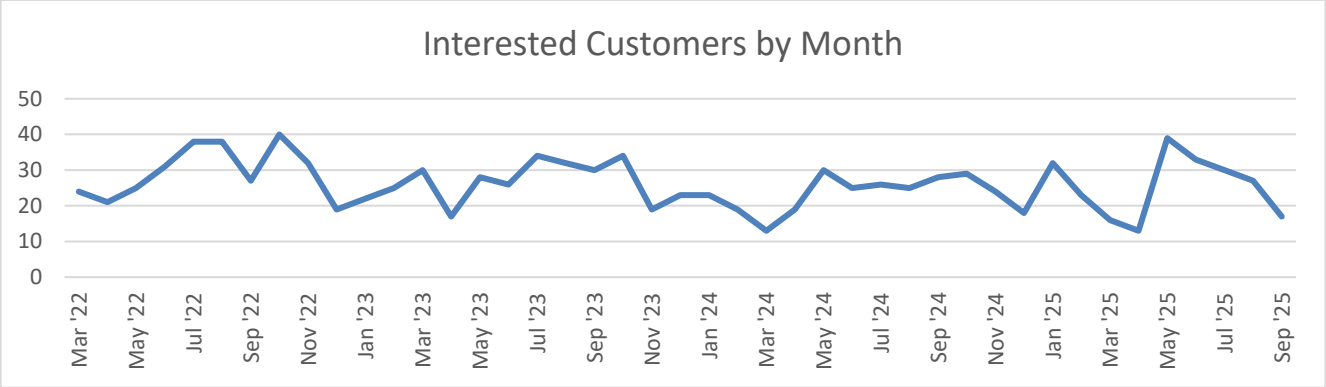
Monthly Metrics and Business Data



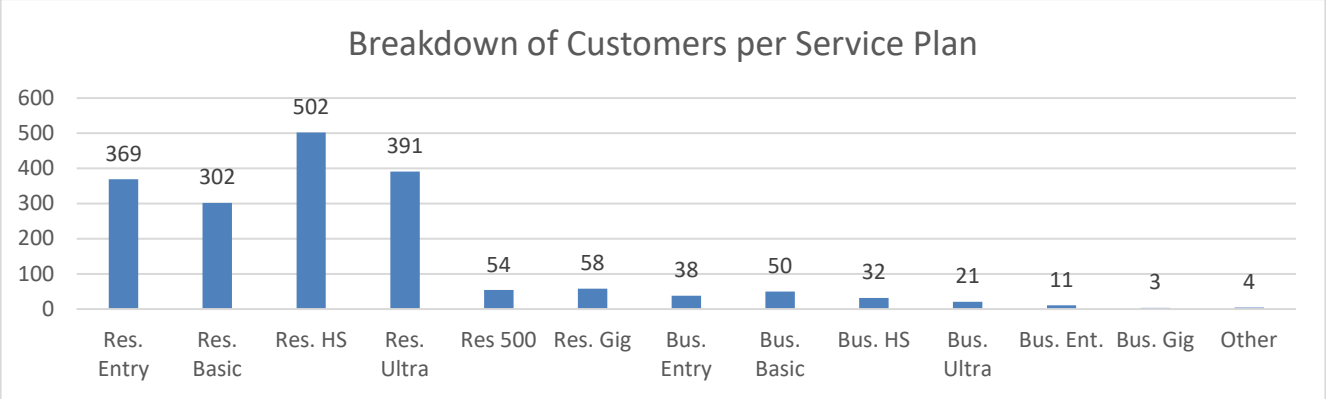
(*Customer count: March 2020 – Present*)



(*The number of new installations and disconnects completed each month.*)

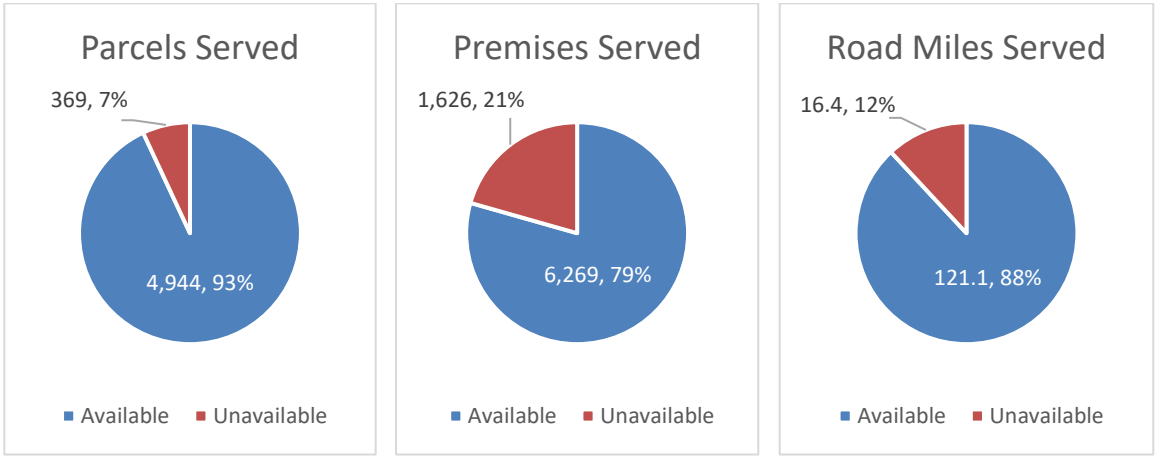


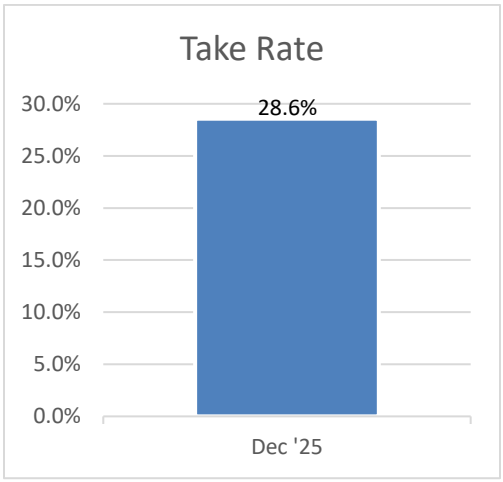
(*This is the number of individuals who submit the Broadband interest form, whether they are in the current service area or not.*)



(*This is the number of each customer on our different service plans as of 9/30/2025.)*

Other Metrics





(As of 2/15/2025)

Appendix

Fiber Broadband Completion Task Force's Report Goals

Goal	Type	Priority	Responsible Party	Additional Info.
Policies (p.39)				
• Universal Access	Policy	Highest	Select Board/Town Meeting	
• Expansion outside current territory	Policy	Low	Select Board/Town Meeting	Conversations happening
• Support Economic Vitality, Sustainability, Equity & Inclusion	Policy	High	Select Board/Light Board/TM Economic Development	Rate subsidy planned
• Affordable Housing	Policy	Medium	Select Board/Housing Groups	Rate subsidy planned; working on Concord Housing Authority properties
• Public Safety	Policy	Medium	Select Board/Town Manager	
• Education	Policy	Medium	Select Board/School Dept.	
• Government Access (PEG)	Policy	Medium	Select Board/PAAC	
Recommended metrics for tracking (p.41)				
• Parcels served	Metric	Medium	Town Staff/Light Board	Complete; will report quarterly
• Premises served	Metric	Medium	Town Staff/Light Board	Complete; will report quarterly
• Road miles served	Metric	Medium	Town Staff/Light Board	Complete; will report quarterly
• Subscribers	Metric	High	Town Staff/Light Board	Complete; will report monthly
• Take rate	Metric	Medium	Town Staff/Light Board	Complete; will report quarterly
• Churn	Metric	High	Town Staff/Light Board	Complete; included in monthly report
• Installations	Metric	Highest	Town Staff/Light Board	Complete; will report monthly
Governance (p.39)				
• Track progress against completion	Metric	Highest	Light Board/Town Staff	Working on this
• Rate of return policy	Policy	High	Light Board/Town Staff	Working on this
• Financial goals with regular reporting	Policy	High	Light Board/FinCom	Working on this
• Retained earnings and reserve policy	Policy	High	Light Board/FinCom	Working on this

Goal	Type	Priority	Responsible Party	Additional Info.
Strategic Planning Goals (p.43)				
• Marketing and growth	Metric	High	Light Board/Town Staff	Working on this
• Business return	Policy	High	Light Board/Town Staff	Working on this
Budgeting Process for Fiber Expansion (p.41)				
• Expand to fill existing opportunities	Planning	High	Light Board/Town Staff	
• External funding sources	Research	Medium	Light Board/Town Staff	Working on this
• ARPA Relief Funds Allocation, incl. Lost Revenue	Finance	Highest	Select Board/Town Manager	Complete
• Review/Confirm Internal Loan Findings	Finance	Highest	Financial Audit Comm/Staff	Complete
• Review and Rescind PILOF to MMN	Finance	High	Select Board/Town Manager	Complete
Capital Planning Process (p.42)				
• Review/Revise Debt financing schedule	Policy	Highest	Light Board/Town Staff	In progress; due to positive financial situation, anticipating being able to repay faster.
• Quantifying cost of expansion	Planning	Medium	Town Staff	Working on this
• How to fund expansion	Planning	Medium	Light Board/Town Staff	Working on this
• Revise/refine methods for computing ROI	Planning	Medium	Light Board/Town Staff	Working on this
Construction and Logistics (p.42)				
• Vibratory plow – direct buried fiber cables	Operations	Medium	Town Staff	Working on this
• Revise/Refine Communication conduit construction standards and guidance	Policy	Medium	Town Staff	Working on this
• Integrate Fiber construction with the Roads Program – focus on Streets without fiber that already have underground electric	Planning	High	Town Staff	Working on this

Historical Electric Thermal Storage (ETS) Information



Concord Light news

January/February 2014

A newsletter for Concord residents, from your community-owned utility

Our customers stay warm for less with ETS

ETS – electric thermal storage – heating uses electricity during off-peak hours to store heat that can warm spaces anytime. Some 135 Concord residents now use ETS, which also heats Concord Light's 33,000-square-foot Operations Center.

Among many benefits, ETS qualifies for Concord's low off-peak rate that can significantly cut heating costs. **This winter, for example, the cost to heat 3,000 square feet is projected to be $2,776 for ETS, $3,834 for natural gas, and $4,767 for oil.**

Clean and quiet, ETS requires no routine maintenance, no chimney, and no fuel deliveries. It can be used to heat an entire home, or to supplement an existing system. We also offer our customers a rebate on the purchase and installation of an ETS system.

For more information, call Carole Hilton at 978-318-3158 or email chilton@concordma.gov. You can also visit concordma.gov/Pages/ConcordMA_LightPlant/ets.

What you're saying

"You can't have a better or more reliable heating system. My ETS system exceeds my expectations and is completely beautiful."

— John Wood, Concord resident heating with ETS since 1997.

Be ready for winter storms

While we at Concord Light work hard to minimize power outages, it makes sense to prepare for the unexpected.

Before a storm:

- Assemble a three-day emergency kit for your family. Start with a flashlight and batteries, light sticks, a battery-powered radio, nonperishable food, and bottled water. Avoid candles and light sources that use open flames.
- Keep the trees on your property trimmed well away from wires and electrical equipment. Falling branches are the most common cause of storm-related power outages.
- Install either a whole house surge suppressor or highly rated surge protectors for your major appliances and electronics to protect them from storm-related power surges.
- For more preparation ideas visit ready.gov and concordma.gov/pages/ConcordMA_LightPlant/tips.

During a storm:

- If you lose power, call our office at 978-318-3101. Call the same number for updates on restoration efforts.
- Stay indoors. If you see downed wires or other damage, do not attempt to inspect the problem – call us for help. Always assume all wires are live and dangerous, and stay well away.
- Make sure that any emergency generators have been installed by a licensed electrician and are not stored or operated in your home. Follow instructions precisely. If used incorrectly, back-up generators can be dangerous to users and to crews working to restore power.

After a storm:

- If your neighbors have their power restored and you don't, call to let us know.

If you use medical equipment

If someone in your household uses electrically powered life support equipment, call Carole Hilton at 978-318-3158 or email chilton@concordma.gov to be placed on our critical health needs list. We will do our best to prioritize your service restoration, but you should always have at least 24 hours of backup power and a plan to move to another location if needed.

Concord Municipal Light Plant
1175 Elm Street, PO Box 1029
Concord, Massachusetts 01742-1029
T: 978-318-3101 F: 978-318-3105
David G. Wood, Director

May 21, 2015

[redacted]

Dear CMLP Customer:

You are receiving this letter because you are on a rate schedule for off-peak power pricing from CMLP for Electric Thermal Storage (ETS) Heating.

The rates and charges for off-peak power for this offering are being reviewed by the Concord Municipal Light Board at their regularly scheduled meeting on **June 10, 2015 at 7:30 a.m.** The meeting will take place at the CMLP Operations Center in the Public Meeting Room located at **1175 Elm Street, Concord, MA 01742.**

Because we value your input as part of the public process, we wanted to reach out to you so that you had an opportunity to be in attendance or voice your opinion regarding possible changes to these charges.

As background, the pricing for winter power (even off-peak) has been extremely high in New England over the last several years due to natural gas pipeline constraints limiting the fuel available to generate electricity. Currently, CMLP is not recovering its cost for these sales which has prompted this item being added to the June agenda. This will be the first in a possible series of discussions surrounding the ETS program.

Should you be unable to attend and would like more information or to send your opinion, please email me at [redacted]. Emails are appreciated in lieu of phone calls so staff can efficiently handle questions and documentation can be easily tracked and forwarded to the Board. Letters to the Board are also welcome at: Concord Municipal Light Board, Attn: ETS Rate Discussion, 1175 Elm Street, Concord, MA 01742.

There will be no vote at this meeting as all votes are required to be administered via rate hearing which must be publically noticed. Thank you for being a part of public power and this process.

In service,

Cassandra Green

Cassandra Green
Power Supply and Rates Administrator

Concord Light — Electric Thermal Storage (ETS) Heating System

Rebate Application and First Year Guarantee

ETS Rebate Concord Light offers customers a rebate after an ETS heating system is purchased and installed. This applies to both new customers and existing customers who upgrade or replace their systems. We will credit the customer's account $100 for each kW installed. For example, if a 35kW boiler is purchased and installed, you would receive a credit* on your account from Concord Light for $3,500 (35kW x $100).

First Year Guarantee If you are not completely satisfied with your ETS heater during its first heating season, Concord Light will remove it at no charge and reimburse you the invoice price for the unit(s) excluding installation and electric service upgrade costs. If needed, the homeowner/business owner is responsible for a replacement heating system including installation costs. The guarantee takes effect after Concord Light determines the unit was installed correctly and in good working order. The guarantee does not apply to damaged/abused ETS equipment as determined by Concord Light. Concord Light must receive a copy of the signed invoice before this guarantee is in effect.

Customer Please review the ETS Rebate and First Year Guarantee information above, then sign below to indicate you understand and accept the terms

Electrical Contractor Forward this rebate form with heat loss calculation and a copy of signed customer invoice to Carole Hilton at Concord Light**

Concord Light To process rebate, attach meter installation form and heat loss calculation to this form

Customer Name _____ Date _____

Customer Signature _____ Email _____

Service Address _____ Phone _____

ETS Model #	# of Units	Size (kW)	Location of Heating System	Heated Square Feet	Retail Cost of Unit
TOTALS	**0**	**0.0**		**Rebate Due**	**$0.00**

Electrician Name _____ MA Lic. # _____

Signature _____ ETS Installation Date _____

Address _____ CMLP Approval _____

* Rebate issued as bill credit unless customer requests check

Customer Account # _____

Customer requests rebate check _____

Rev. 5-05-2014

**Carole Hilton, Customer Service Administrator
1175 Elm St, PO Box 1029, Concord, MA 01742
T: (978) 318-3158; F: (978) 318-3105
Email: chilton@concordma.gov

August 5, 2014

<CUSTOMER>
<ADDRESS>
<CITY>, <STATE> <POSTAL>

RE: Changes to ETS Rebate Program

Dear ETS Homeowner:

As an ETS homeowner, I want to make you aware of recent changes to our Electric Thermal Storage (ETS) Rebate Program. Concord Light is extending our rebate program to include upgrades, replacements, or refurbishments* to existing heating systems in addition to new customer installations. The rebate amount remains at $100 per kilowatt installed with your ETS furnace or boiler.

Although the life expectancy for ETS heating systems is about 20 to 25 years, it is possible that parts may need replacing sooner — as with any heating system. If your system was installed in the late 1990's or early 2000's, we recommend scheduling an appointment for maintenance with a qualified installer before the upcoming heating season to ensure all the components are functioning properly.

Should your ETS system require major upgrades, when compared to repair costs, your installer may recommend going with a new system instead of replacing components. However, if refurbishment is the best option for you, then this expanded rebate will apply.

Please feel free to contact me if you have any questions or need additional information about our ETS Rebate Program. Thank you for being an ETS homeowner and participating in this peak reduction program.

Sincerely,

Carole Hilton
Customer Service Administrator
T: 978-318-3158
E: [redacted]

* Refurbishment to an existing ETS heating system includes at a minimum replacing all the heating elements, control boards, wiring cable assemblies, and fan motors.

October 1, 2015

[redacted]

Dear Fellow Concordian:

Yours is one of 140 households in Concord that uses Electric Thermal Storage (ETS) to heat your home. As such, you are directly affected by proposed rate increases now being considered by the Board of the Concord Municipal Light Plant (CMLP). Since the proposed changes were announced, some ETS users have been communicating informally about how best to participate in the CMLP Board deliberations, and that group of ETS users is writing you this letter. We feel that the customer perspective will be better represented with input from more ETS users, who can help analyze the impact of rate increases and present our individual concerns to the Board with a unified voice. For these reasons we are inviting you to join a Concord ETS Users Group.

Our ETS Users Group is not being formed to fight the CMLP Board. We believe that the Board is open minded on this issue and will welcome the information we provide. As such our first order of business will be to ask that the Board postpone a vote on proposed rate changes, to give the ETS Users Group reasonable time to organize and develop comments.

To make communication and information sharing easier, we are organizing the ETS Users Group using the Google Groups online platform. You do not need a Google account or a Google email address to join our Google Group. Simply go online to https://groups.google.com, enter our group name ETS01742 in the search box, and follow the prompts. If you run into difficulties, send an email with your name and address to Peter Fandel at [redacted] Peter's phone is [redacted]

It is important to recognize that we would not be able to send this invitation to all Concord ETS customers without the cooperation of CMLP. By sending a letter for us instead of giving us your contact information, CMLP is protecting your privacy should you choose not to participate. The very fact that CMLP is helping organize our ETS Users Group - a group that will likely oppose the rate increases as proposed - speaks to CMLP's commitment to a full and fair hearing. We believe it is an indication of CMLP's good faith, on which we have always relied.

Sincerely,

Concord ETS User Group

Concord's Light Board works for you

Concord Municipal Light Plant is a municipal utility owned by the people of Concord and governed by local citizens to benefit all customers. CMLP is one of 40 municipal utilities in Massachusetts, each independent, yet united in our commitment to low rates and outstanding service.

Here in Concord, our Light Board consists of five volunteers appointed by the Town Manager. The Board usually meets every second Wednesday at 7:30 a.m. at CMLP's Public Meeting Room. We encourage our customers to attend—please check the Calendars section at concordma.gov to verify meeting dates and times.

For more information about the Light Board's work, including its 2014-15 goals and objectives, visit concordma.gov/pages/ConcordMA_LightPlant/board.

Concord Municipal Light Plant Board members include, seated from left, Dan Gainsboro, Gary Clayton (Chair) and Peggy Briggs. Standing are Lynn Salinger and Jim Terry.

BEFORE THE SNOWPLOWS COME...

Tell employees and snow removal contractors where all outside electrical equipment serving your business is located, and warn them to steer clear. Consider marking locations where ground-level equipment may become snow-covered.

Remind workers to look up to avoid contact with overhead lines, and tell them not to dump snow onto electrical equipment, or to block access to it.

Make sure everyone knows that downed lines should always be considered live and dangerous. If anyone sees a downed line, or anything out of the ordinary about outside electrical equipment, they should stay well away and call CMLP for help.

Cut your heating costs with ETS

If you're looking for a way to cut heating costs this winter, ETS—electric thermal storage—could be the answer. ETS heaters provide round-the-clock warmth at a bargain rate, using proven technology that is clean, quiet, and environmentally friendly.

ETS heaters work by using electricity during off-peak hours to store heat that can be used anytime. ETS benefits include:

- *It qualifies for a low, off-peak electric rate.*
- *There's a rebate from CMLP of $100 per installed kilowatt of capacity—a 35-kilowatt boiler would qualify for a $3,500 bill credit.*
- *You can choose either a central furnace or individual room units.*
- *Whole-building retrofits can be done one unit at a time to fit budgets.*
- *There are no worries about fuel deliveries or carbon monoxide.*
- *ETS is smart grid and smart meter ready.*
- *It cuts overall peak demand and power costs.*

There's a guarantee. If you are not completely satisfied with your ETS heating system during its first heating season, CMLP will remove it at no charge and reimburse you the invoice price for the unit(s) excluding installation and electric service upgrade costs.

Call Carole Hilton at [redacted] or email [redacted] for more details.

Concord Municipal Light Plant
Monday-Friday
8:00 a.m. - 4:30 p.m.

1175 Elm St., P.O. Box 1029, Concord, MA 01742
www.concordma.gov/cmlp • Tel (978) 318-3101 • Fax (978) 318-3105

Community news

Picnic-in-the-Park needs volunteers

Concord's Picnic-in-the-Park Committee needs volunteers to support this year's July 4 celebration at Emerson Field. Committee members will work a few hours each month through July. Volunteers are also needed to work at the event. Call 978-369-6690.

Housing Authority seeks candidates

The Concord Housing Authority seeks qualified candidates for their two- and three-bedroom family public housing waiting lists. Those living or working in Concord or who have honorable discharge veteran's status will receive a preference. Screening for eligibility requirements, including income, will be required. Call the Concord Housing Authority at 978-369-8435 for information, or visit concordha.org.

Have a community event you would like to see here? Call Carole Hilton at 978-318-3158.

Your local utility

On April 4, 1898, Town Meeting voters took control of Concord's electric service by establishing a municipal Light Plant. The idea behind the new utility was that local control would mean better utility service and lower rates. After 115 years, the idea still works. Happy birthday, Concord Light!

Keeping the lights on in Concord

Building and maintaining a modern and efficient electric system that keeps up with a community's changing needs is a team effort. In Concord, the team includes nine lineworkers and two underground construction workers.

They bring a combined total of 146 years of experience to a demanding job, whether it's upgrading equipment, extending service to new customers, working on underground construction, or restoring power after an outage.

"Probably the most rewarding aspect of the job is restoring power safely and efficiently after major storms," says Lead Lineworker Chip Gent, who has some 43 years of experience. It's especially satisfying, he added, when customers go out of their way to say thanks.

In addition to Gent, Concord's lineworkers include Lead Lineworker David Ransom, Lineworker Grade 1 P.J. Connell, Lineworker Grade 1 Dan McDonough, Lead Lineworker Ted Bartkus, Lineworker Grade 1 Peter Hughes, Lineworker Grade 1 Jack Tombeno, Lineworker Grade 1 Michael Hoogendoorn and Lineworker Grade 1 Steven Ransom. Underground construction workers are Eric Bjornson and Steve Dunn.

Our lineworkers help others, too

Our lineworkers also help others in need when possible. They traveled as far as the U.S. Virgin Islands in the 1980s after devastating hurricanes hit, but most calls for help are closer to home. Recently, two of our crews spent several days in Middleborough, MA to help restore power there after they, unlike Concord, sustained widespread damage during the Blizzard of 2013.

Lead Lineworker Chip Gent

The Concord Light team that builds and maintains our electric distribution system

These options cut costs, not comfort

Electric thermal storage heating. ETS uses electricity during off-peak hours to store heat that can warm spaces any time. Our off-peak rate for ETS means that it costs less than oil and is very competitive with natural gas. See working ETS heaters at our office.

Electric hot water savings. If your home has ELECTRIC hot water, you can choose our off-peak rate for your water heating. The rate works with an electronic switch that allows us to cycle power to your water heater during peak periods when power is most expensive.

For more details on these two options, visit concordma.gov/cmlp, call Carole Hilton at 978-318-3158 or email chilton@concordma.gov.

Concord Light
Monday – Friday 8 a.m. to 4:30 p.m.
1175 Elm St., PO Box 1029, Concord, MA 01742 • Tel 978.318.3101 • Fax 978.318.3105 • www.concordma.gov/cmlp

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Reviewing the History of the Electro Thermal Storage (ETS) Program in Concord

October 8, 2025

Overview of the ETS Technology

Electric Heating Mechanism

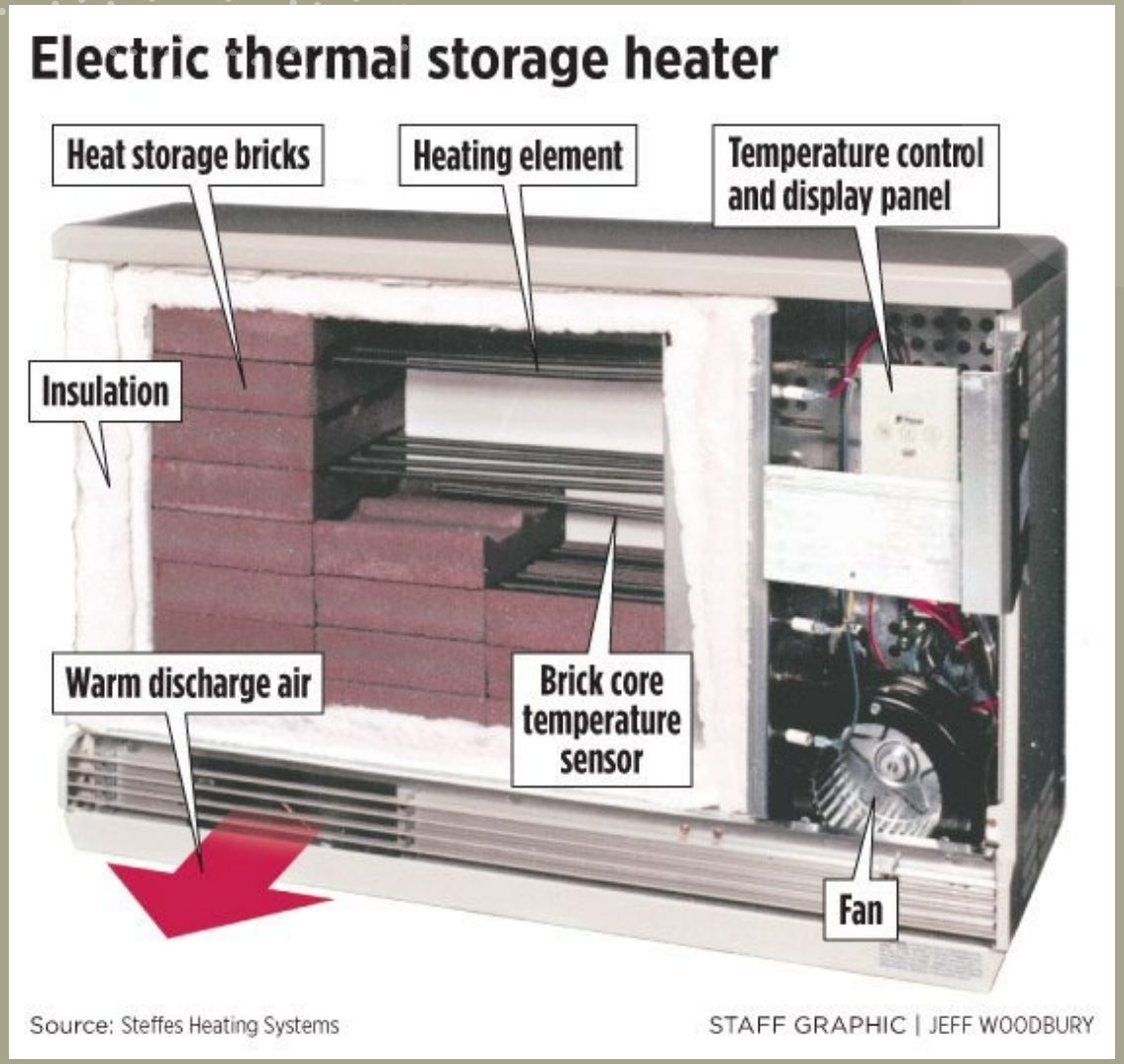
ETS technology uses electric heating to store thermal energy efficiently, making it an innovative solution for energy management.

Cost Efficiency

By utilizing stored thermal energy, users can benefit from lower energy costs during peak electricity hours, optimizing their energy expenses.

Thermal Energy Storage

Specially designed storage units effectively retain thermal energy for later use, providing reliable heating when needed.



Principle of Operation

Charging During Off-Peak Hours

ETS units charge with electricity when demand is low, benefiting from lower energy costs.

Consistent Heat Release

The stored heat is gradually released to provide a steady and consistent warmth in the environment.

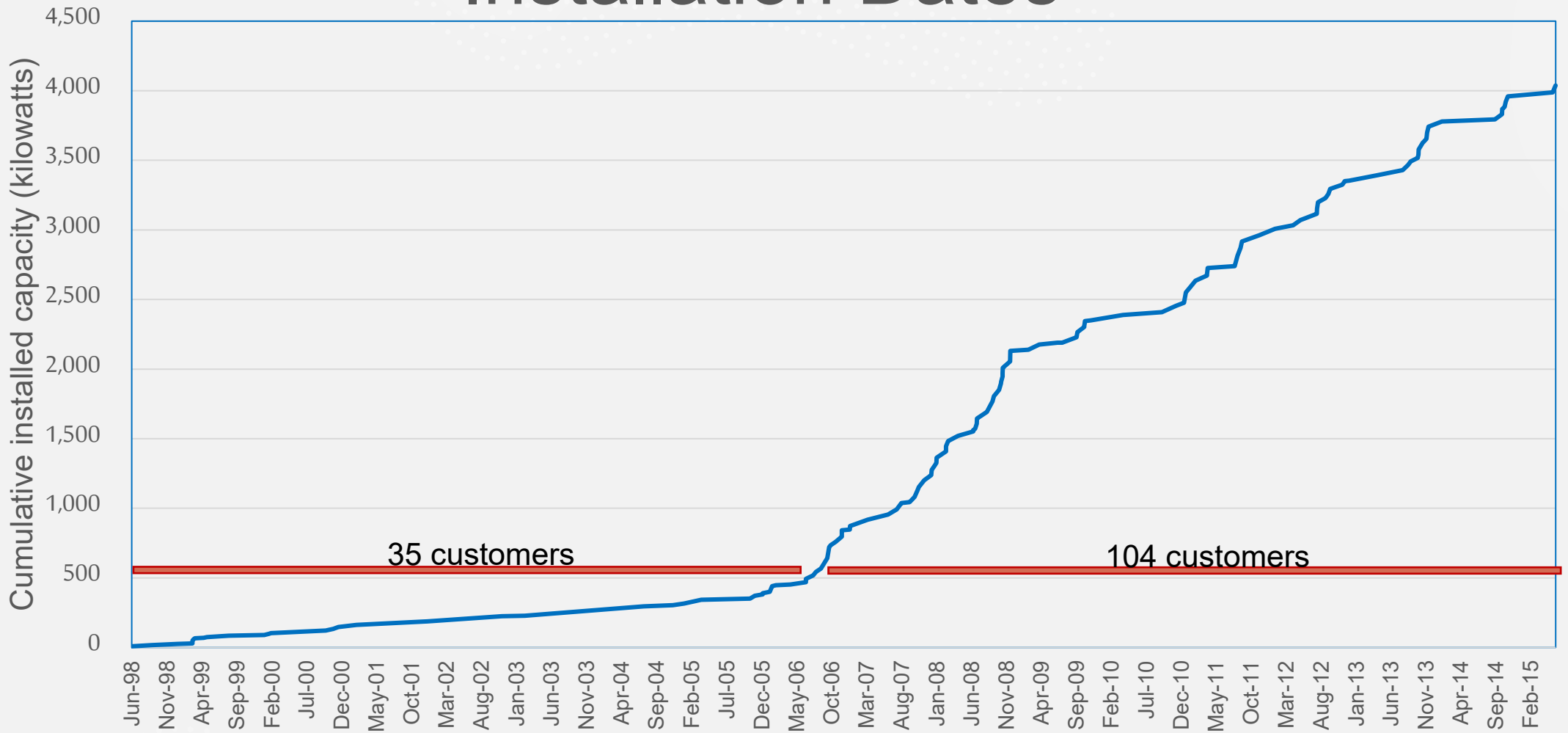
Energy Efficiency

This operation enhances energy efficiency by optimizing electricity usage and reducing overall energy consumption.

Program Launch

- CMLP began offering rebates for ETS heaters in 1998 at the rate of $100/kW. The average/median size was 29.1/30.6, respectively.
- CMLP issued a guarantee that if you were not satisfied with your ETS heater(s) during its first heating season, CMLP would remove it at no cost and reimburse the customer.
- In 1998, off-peak rates for ETS were $0.045/kWh. They rose to $0.05/kWh in 2003. By 2025, it was 10.43 cents/kWh.

Installation Dates



ETS Materials

Cut your heating costs with ETS

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Call Carole Hilton at [redacted] or email [redacted] for more details.

January/February 2014

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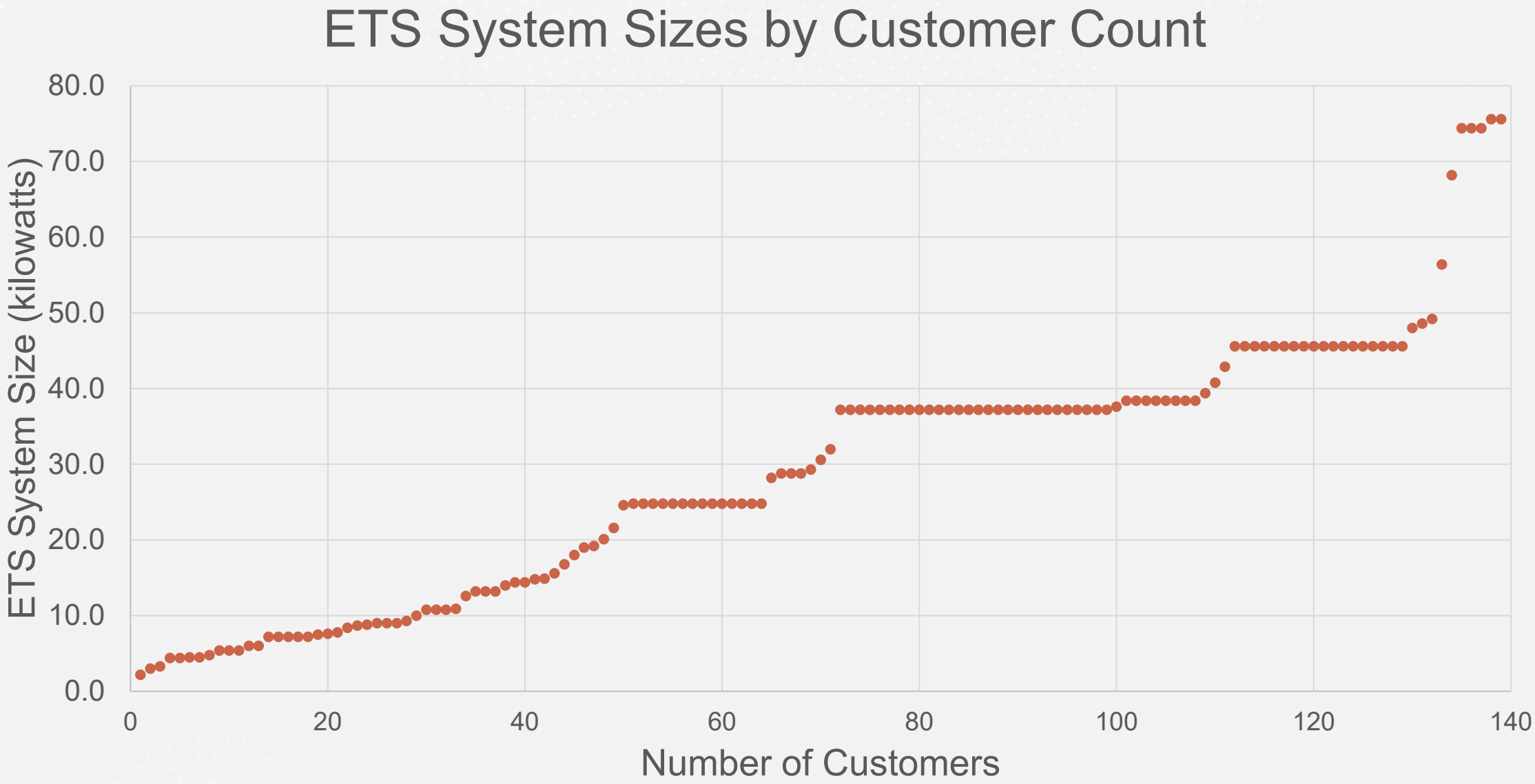
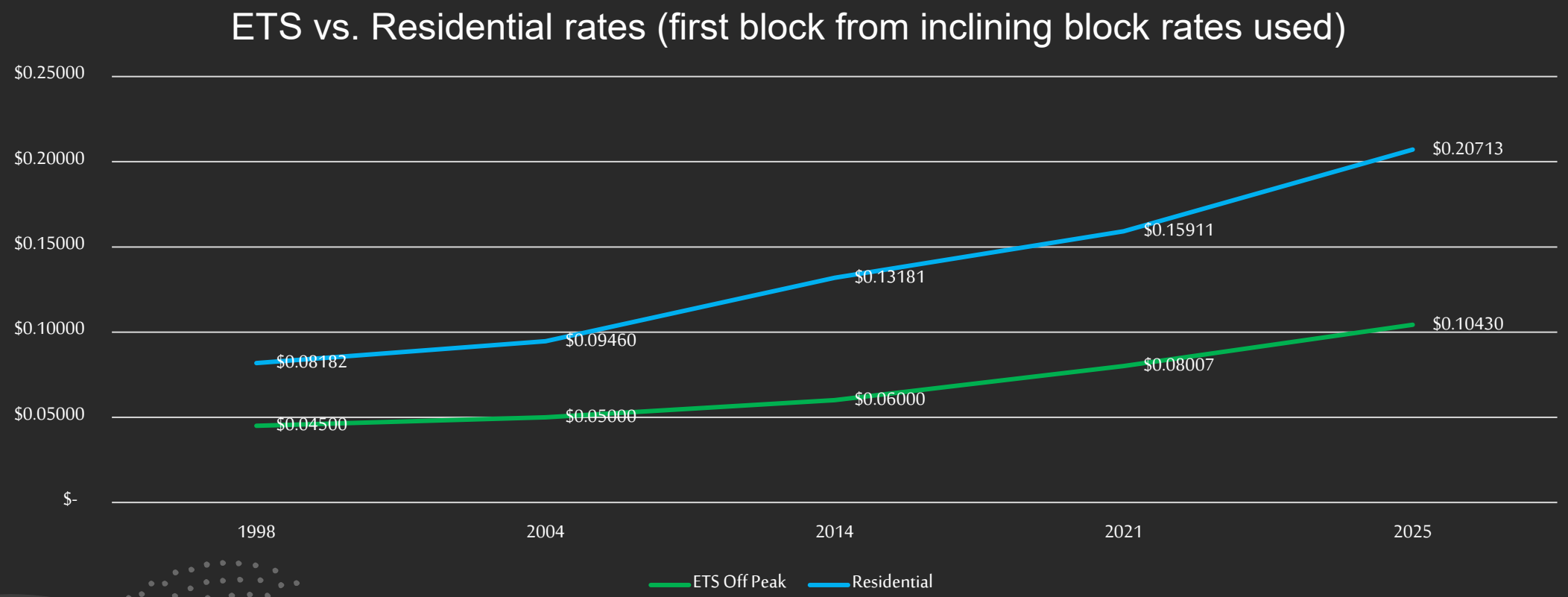

ETS System Sizes by Customer Count
ETS System Size (kilowatts)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
0
20
40
60
80
100
120
140
Number of Customers

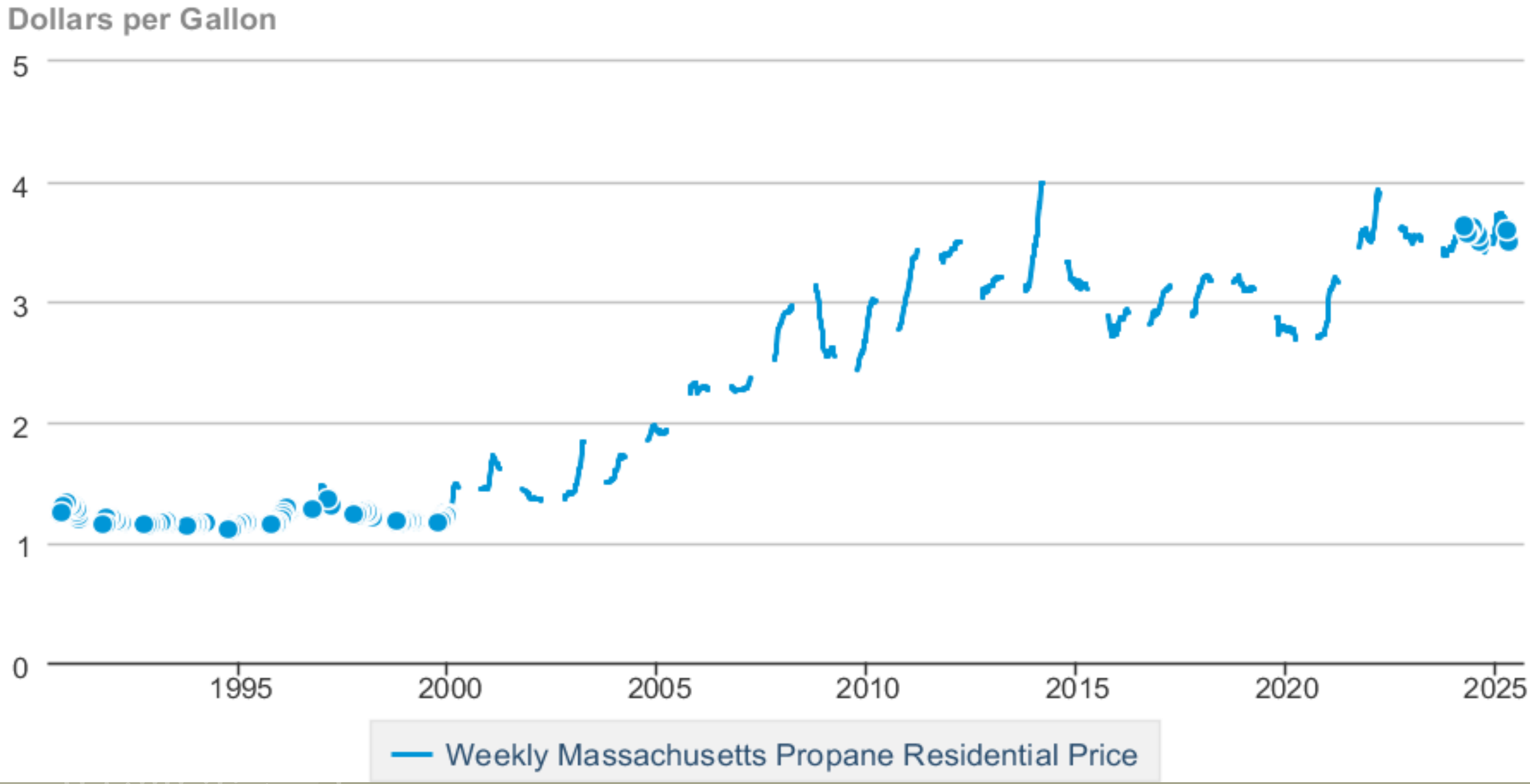
Electric Rates



Time to Payback Considerations

- Was it a whole-house unit or an area heater?
- What was the fuel source they switched from? Oil, propane, electric resistance, and natural gas will have different pay-back periods.
- What have they paid in maintenance costs?
- How old/new was their old heating system at the time of replacement?

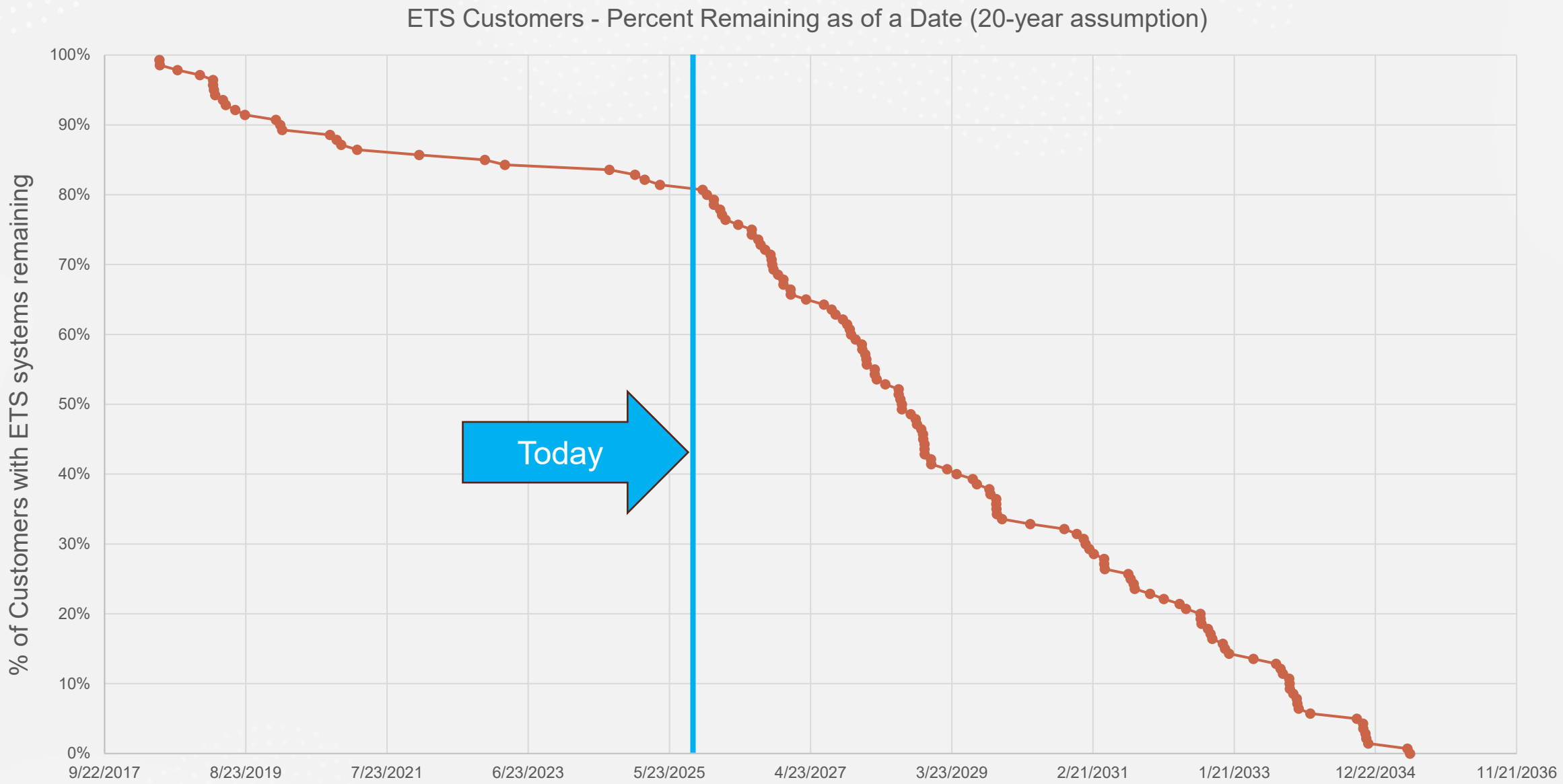
Weekly Massachusetts Propane Residential Price



Customer Return on Investment (2005 Estimates)

ETS System Cost (37.2kW)	Propane/Oil Boiler Replacement	Rebate	Cost to operate ETS	Cost to Operate Propane
$21,500	$8,800	$3,700	$1,542/yr	$2,914/yr

For a system installed with all averages (size, installation cost, replacing heat source, etc.), users were told to expect a 9-year break-even point. Our calculations verify that estimate.


ETS Customers - Percent Remaining as of a Date (20-year assumption)
% of Customers with ETS systems remaining
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Today
9/22/2017
8/23/2019
7/23/2021
6/23/2023
5/23/2025
4/23/2027
3/23/2029
2/21/2031
1/21/2033
12/22/2034
11/21/2036

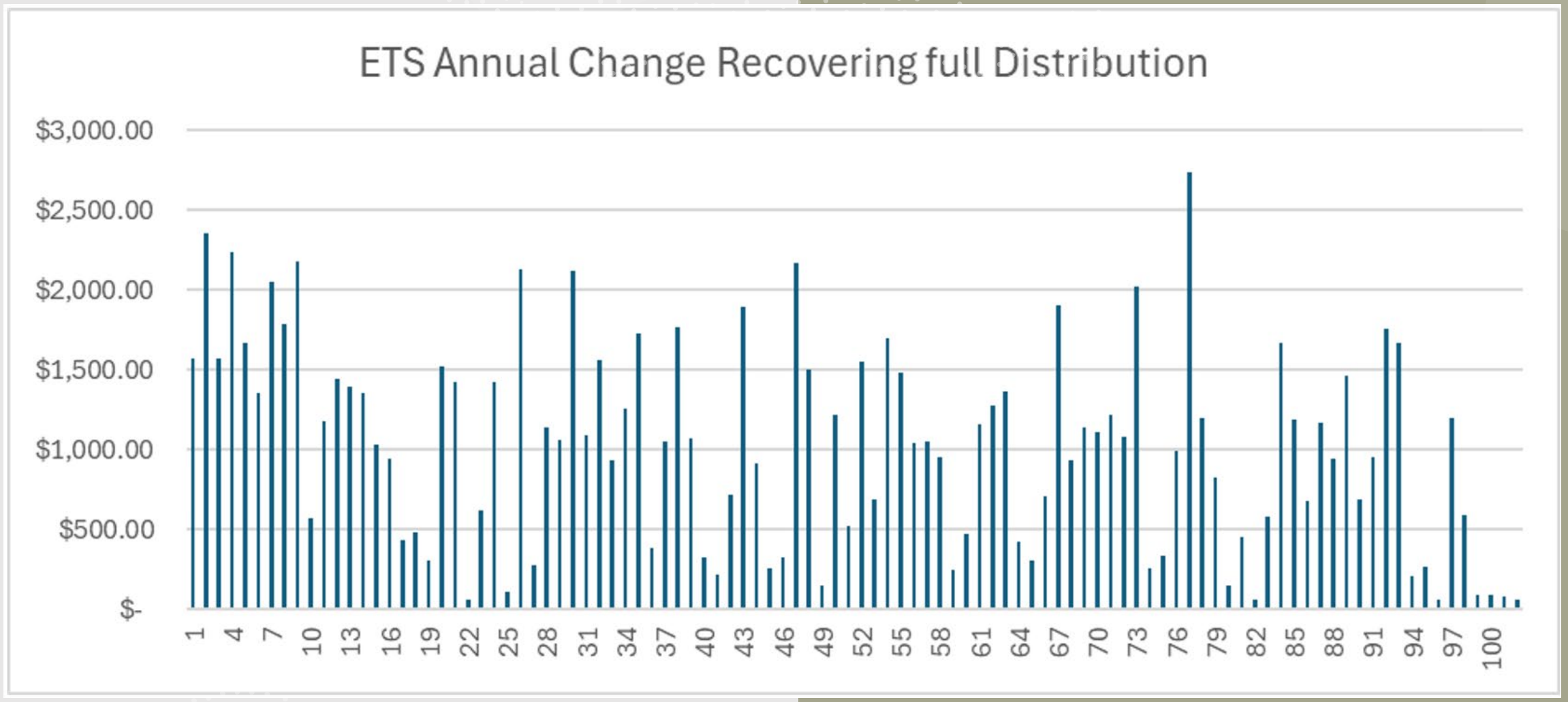
Cost Increases for ETS Customers

Rate Certainty

The ETS rate has doubled since 1998, and the uncertainty about future rates has led to some prematurely abandoning their system.

Rate Shock

Moving to Time-of-Day rates could nearly double current rates.


ETS Annual Change Recovering full Distribution
$3,000.00
$2,500.00
$2,000.00
$1,500.00
$1,000.00
$500.00
$-
1
4
7
10
13
16
19
22
25
28
31
34
37
40
43
46
49
52
55
58
61
64
67
70
73
76
79
82
85
88
91
94
97
100

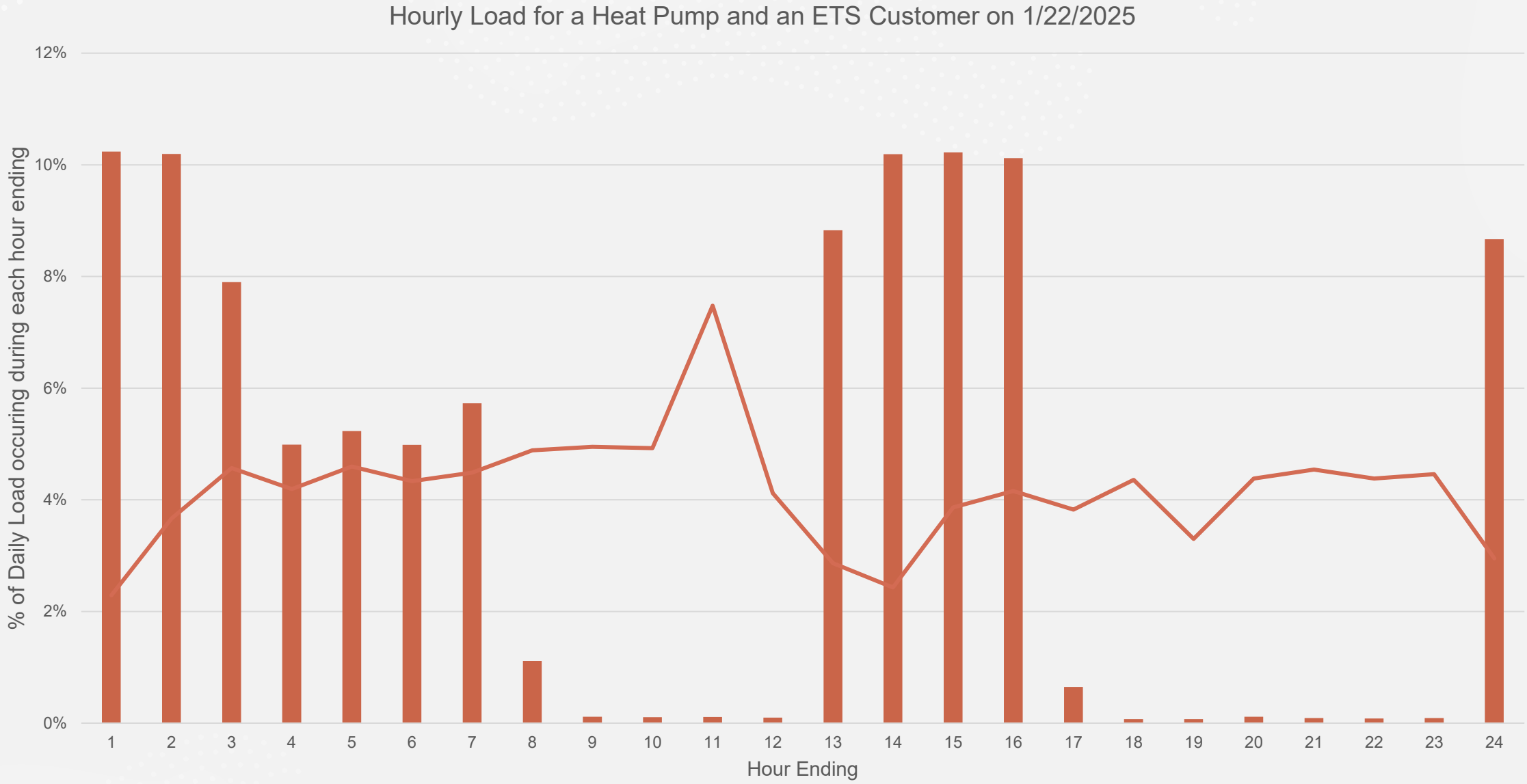
Alternatives and Impacts

ETS Load Shape

The ETS load shape is ideal. The primary appeal is they use little to no power during peak periods.

Switching to Heat Pumps

Heat pumps use a good deal of electricity during peaks and come with rebates up to $10,000 for a whole-home heat pump.


Hourly Load for a Heat Pump and an ETS Customer on 1/22/2025
12%
10%
8%
6%
4%
2%
0%
% of Daily Load occuring during each hour ending
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
Hour Ending