April 13, 2026

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Lauren MacArthur, Hearing Officer
Massachusetts Department of Public Utilities
Boston, MA 02110
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RE: D.P.U. 25-86: Petition of NSTAR Gas Company, d/b/a Eversource Energy for Approval of a Regulatory Framework for Networked Geothermal Services and Geothermal Rate

Dear Hearing Officer MacArthur,

The Environmental League of Massachusetts ("ELM") appreciates the opportunity to provide comments on the petition of NSTAR Gas Company, d/b/a Eversource Energy ("NSTAR Gas" or "Company") for approval of a regulatory framework for networked geothermal services in D.P.U. 25-86.

General Comments

Massachusetts is a national leader in confronting the challenge facing every gas distribution company: how to transition a legacy fuel delivery system toward decarbonization while protecting ratepayers.[1] The Department's landmark order in D.P.U. 20-80-B established a clear mandate for gas local distribution companies ("LDCs") to pivot toward electrified and decarbonized heating technologies, with networked geothermal identified as the technology with "the most potential to reduce GHG emissions".[2]

With that mandate, NSTAR Gas has done more than any other LDC to operationalize the transition. The Framingham Pilot was the first utility-scale networked geothermal project in the United States, marking a significant accomplishment in both innovation and a commitment to statutory and regulatory obligations toward decarbonization.[3] The Department previously stated it "eagerly awaits successful evaluation data concerning costs, feasibility, and potential scalability," before developing extensive guidance.[4] The instant petition establishes the beginning of a new stage for developing a regulatory framework for networked geothermal, evolving from demonstration to large-scale deployment. While progress is welcome, the

[1] Global Warming Solutions Act, 2008 Mass. Acts 1148; G.L. c. 25 § 1A.
[2] *Investigation into Modernizing the Local Natural Gas Distribution System*, D.P.U. 20-80-B at 2, 79 (2023).
[3] *Petition of NSTAR Electric Company*, D.P.U. 19-120 (2020).
[4] D.P.U. 20-80-B at 86.

Department is positioned to ensure measured, informed, and principled ratemaking and affordability govern as networked geothermal opportunities develop in the Commonwealth.

ELM files these comments to support these developments, but also to raise concerns related to establishing a foundational rate base for geothermal networks. Both policymakers and industry are at the early stages of learning how to build, price, and optimize this new technology. As quickly as ELM would like to see large-scale deployment, outstanding issues remain, including the nascent stage of development in relation to future costs, the value determination of anchoring geothermal rates to natural gas, and measuring consumption to advance the Commonwealth's efficiency objectives. ELM does not oppose approval of the proposed framework or rate structure, provided that any approval designates the geothermal rate as interim and subject to revision, and the Department continue to structure approvals to drive the costs of geothermal down.

M.G.L. c. 164 § 94 directs the Department to require that public utility rates be just and reasonable.[5] The Department is tasked not only with safety, security, reliability, and greenhouse gas emissions reductions, but also equity and affordability.[6] As more projects develop, opportunities for economies of scale grow, and costs are likely to decline sharply. ELM recommends that the Department refrain from establishing a permanent rate structure before these learnings can be complete, and the costs of deployment at scale become more certain.

The Approved Rate Must Be Interim and the Framework Must Include Data-Sharing Requirements

As stated, ELM does not oppose the petition, provided that any approved rate is designated as interim and subject to revision, and that the framework include data-sharing requirements to accelerate learning and reduce costs for future projects. The projected residential bill impact of approximately $0.36 per month for non-participating customers at the $15 million cap is not unreasonable, and the decarbonization potential for supporting networked geothermal development is significant.[7] However, the rate structure as proposed raises four issues that demonstrate why a permanent designation would be premature and why the Department's own prior directives require an interim approach. ELM requests that the Department consider the following: (1) the consequences of establishing a baseline for future rate cases before the economics sufficiently mature; (2) anchoring rates to natural gas has near-term benefits with lasting consequences for future rate cases; (3) the unmetered rate structure fails to produce the data necessary to satisfy the Department's scalability requirement; and (4) the regulatory framework should include requirements related to data collection and sharing to enable effective knowledge sharing.

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[5] *Bay State Gas Co. v. Dep't of Pub. Utils.*, 459 Mass. 807 (2011).

[6] G.L. c. 25 § 1A.

[7] *Petition of NSTAR Gas Company d/b/a Eversource Energy for Approval of a Regulatory Framework for Networked Geothermal Services and Geothermal Rate*, D.P.U. 25-86, Exh. ES-Rates-1, at 30-31 (September 17, 2025).

First, the economics of networked geothermal are likely to improve substantially with scale. As more projects are built, equipment costs decline, workforce expertise deepens, and procurement and design become standardized. Learning curves are critical in planning for power generation, with levelized costs of energy declining as deployment and adoption grows.[8] In the Framingham Pilot Program, system costs per household declined from the smaller experimental phase to the second, larger phase, as the infrastructure and expertise provided cost advantages to continued development.[9] Solar PV costs fell 86 percent between 2010 and 2023 as cumulative deployment scaled, demonstrating that establishing rates before technology matures will fail to pass cost reductions and benefits onto ratepayers.[10] The Department has both the opportunity and the obligation to facilitate that trajectory. A core principle of public utility ratemaking is that regulation should replicate competitive market incentives for cost discipline. An interim rate is sufficient for the Department to advance networked geothermal projects in the Commonwealth, while ensuring future rates are not based on a provisional understanding of cost.

Second, the geothermal rates are intentionally anchored to natural gas revenue requirements rather than actual geothermal costs. The Company acknowledges that a cost-based geothermal rate would be "substantially higher than the natural gas equivalent rate."[11] This makes gas-anchoring a practical necessity at this early stage. However, a rate designed to track gas costs rather than geothermal costs cannot reflect improvements in geothermal economics over time. With a rate anchored to natural gas, as the gas system shrinks and per-customer gas costs rise, geothermal rates would rise with them even though actual geothermal costs had fallen. A rate that cannot track actual costs should not be permanent.

Third, geothermal service under the proposed framework is unmetered and billed by assigned capacity in tons rather than actual usage.[12] There is no accurate measurement of consumption, reducing the incentive for efficiency, and undermining the Department's requirement that geothermal projects generate findings capable of informing scalability.[13] As the Department made clear in considering cost recovery for the Framingham Pilot, "when the Company seeks cost recovery it bears the burden to demonstrate that the demonstration project is being implemented in a manner to provide direct benefits to ratepayers . . . or generate findings to inform the scalability of networked geothermal for its existing gas customers."[14] A framework

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[8] Mark Bolinger, Ryan Wiser, Eric O'Shaughnessy., *Levelized Cost-Based Learning Analysis of Utility-Scale Wind and Solar in the United States,* 25 iScience 104378 (2022), https://www.cell.com/iscience/fulltext/S2589-0042(22)00649-6.

[9] Donald Lessard, *Business Models for Community Networked Geothermal Heating and Cooling*, MIT OpenCourseWare at 5-6 (Jan. 2025), https://ocw.mit.edu/courses/res-env-007-geothermal-energy-networks-transforming-our-thermal-energy-system-january-iap-2025/mitres_env_007_lec04_3.pdf (noting per-household system costs fell 50% from network 1 to network 2 in Framingham).

[10] Rahmatallah Poudineh, *From Scarcity to Scale: The New Economics of Energy*, Oxford Inst. For Energy Stud. (April 2025), https://www.oxfordenergy.org/wpcms/wp-content/uploads/2025/04/EL58-From-Scarcity-to-Scale-The-New-Economics-of-Energy.pdf (showing Solar PV costs went from $5,310/kW in 2010 to $757/kW in 2023).

[11] *Petition*, D.P.U. 25-86, Exh. ES-Rates-1, at 6.

[12] *Petition,* D.P.U. 25-86, Exh. ES-Rates-1, at 14-15.

[13] D.P.U. 20-80-B at 79, n. 55.

[14] D.P.U. 19-120 at 147-148 (stating the considerations for demonstration project rates).

that cannot measure when customers actually consume energy cannot provide the performance data the Department needs to develop broader guidance.

Interim approval does not undermine regulatory certainty concerns that may be raised. It signals Massachusetts is treating geothermal ratemaking as an ongoing regulatory project, which may be more valuable to long-term investors than a permanent rate built on acknowledged approximations. An interim approval is not a conditional approval, it is an approval with a built-in commitment to revisit, which signals to the market that Massachusetts is engaged with geothermal ratemaking, something very few states are engaging with at this time.[15]

Finally, the framework fails to include any requirements for data collection and sharing that could support future project development. The Department's own directives require that demonstration and development-phase projects generate findings capable of informing scalability.[16] Project costs, performance, and system data should be shared in accordance with the Department's principles related to demonstration projects. The Framingham Pilot illustrates the benefits of data sharing, as collaboration between the Company and Home Energy Efficiency Team ("HEET") resulted in a planned expansion of the geothermal network at reduced costs.[17] The state of Maryland provides a model for what this could look like: directing utilities to participate in project data sharing through a databank for networked geothermal projects.[18] HEET operates such a databank, providing capabilities to support future project development through iterative learning and cost comparisons.[19] As a condition of framework approval, the Department should require the Company to submit non-customer project cost and performance data to a third-party repository, such as HEET's Geo DataBank, to accelerate the learning curve for networked geothermal.

Conclusion

For these reasons, the proposed framework cannot generate the data needed to determine whether it is working, or to set a permanent rate grounded in actual geothermal economics and costs. ELM respectfully requests that the Department (1) condition any approval of the proposed framework on the designation of any approved geothermal rate as an interim rate subject to revision in a future adjudicatory proceeding; and (2) direct the Company to participate in a data-sharing program with a third party in order to promote efficient and effective technical capabilities for future project development.

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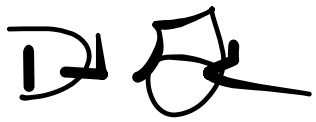
[15] *Thermal Energy Networks Getting a Closer Look in States,* Pub. Power (Mar. 13, 2025), https://www.publicpower.org/periodical/article/thermal-energy-networks-getting-closer-look-states.
[16] D.P.U. 19-120 at 147-148.
[17] *Case Study: Framingham, Massachusetts*, Bldg. Decarbonization Coal. (July 29, 2025), https://buildingdecarb.org/resource/case-study-framingham-massachusetts; *See* Lessard, *supra* note at 5.
[18] Md. Code Ann., Pub. Util. §§ 7-1101 – 7-1106 (2024). *See also* In re Pilot Thermal Energy Network Sys., Case No. 9749 (Md. Pub. Serv. Comm'n Dec. 19, 2025) (Order No. 92095).
[19] *Databank*, HEET, https://www.heet.org/databank.

Sincerely,



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