STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 24-3460-INV

Public Utility Commission investigation into thermal energy exchange networks pursuant to Act 142 of 2024	

VERMONT DEPARTMENT OF PUBLIC SERVICE RESPONSE TO REQUEST FOR INFORMATION

On April 23, 2025, the Vermont Public Utility Commission ("Commission") issued a request for information in the above captioned case ("RFI"). The Vermont Department of Public Service ("Department") provides the following responses based on recent developments at the federal level related to the general near-term viability of Thermal Energy Network Exchanges ("TEN") in Vermont. As a consequence of recent events, the Department suggests light-touch TENs regulation to encourage their Development until there is a showing of likely proliferation (i.e. better TENs economics).

On May 15, 2025, the U.S. Secretary of Energy issued a memorandum, "Secretarial Policy on Ensuring Responsibility for Financial Assistance" seeking to ensure federal financial assistance awards conform with the Administration's "standards" and seeking to avoid "fraud, waste and abuse".[1]

The Department is aware of at least one promising TENs project abandoned due to recent changes in federal administration policy (Case No. 25A-0742 Vermont Gas Systems, Inc. Windy Ridge Geothermal Project) ("Windy Ridge"). Vermont Gas Systems ("VGS") initially proposed to develop a TEN to serve forty-four affordable housing units with $3,010,000 in awarded

[1] Available at https://www.energy.gov/sites/default/files/2025-05/EXEC-2025-005990%20-%20Secretarial%20Policy%20-PRP%20-%205-14-25%20%28FINAL%29%20%282%29.pdf.

Department of Energy grant funds — withheld by the federal administration. Consequently, the Department understands VGS intends to pursue a project with a reduced scope, proposing multiple ground source geothermal heating systems to serve multiples of three to four housing units per system, rather than a networked geothermal system. Without substantial federal funds, the initially proposed TEN would not have been cost effective even under the societal cost test — including the substantial value of avoided carbon emissions.[2]

Given the anticipated general unavailability of federal funds for TENs in Vermont, the Department sees a greatly reduced likelihood of TEN proliferation in the State in the near term. The Department's posture on TENs has changed accordingly, from a regulatory review posture to an innovation and development support posture. With this pivot in mind, the Department provides the following response to the Commission's RFI, only including questions and answers where providing responses.

1. Should the permitting of thermal energy networks be subject to review under 30 V.S.A. § 248, Act 250, or local/municipal zoning?

The Department comments on § 248 as being withing its subject matter. The Department does not believe TENs should be subject to § 248 CPG requirements at this time. As explained above, the Department believes a light-touch approach to TENs is appropriate until TENs prove economically viable in Vermont.

[2] The Department acknowledges TENs may be cost-effective and even lower cost than air source heat pumps or combustible fuel heat sources on a lifecycle basis in certain circumstances. *See* Department Comment, 03/03/25, 6, note 5 (discussing a cost effective TEN in the medium density urban area of Southeast False Creek, Vancouver); Economically viable large geothermal heating systems have already been proposed; *See, e.g.* VGS Notice re Climate Action and Innovation, RRMC Geothermal Project, Case No. 22A-4238, 09/27/22, 4 (asserting the proposed small-to-medium commercial geothermal pilot would be less expensive than the existing combined propane/heat pump from the customer's perspective).

5. Vermont utilities must obtain a certificate of public good under 30 V.S.A. § 231. If a Vermont utility with an existing Section 231 certificate of public good were to propose owning and operating a thermal energy network, would an amendment to the certificate be required?

Section 231 currently provides for issuance of a certificate of public good ("CPG") "specifying the business and territory to be served." Where a regulated utility's existing CPG does not provide for TENs ownership or operation and such ownership or operation is beyond the scope of permittable pilot programs, requiring a § 231 CPG amendment is appropriate.

6. Would an owner of a private or cooperative owned thermal energy network be required to obtain a Section 231 certificate of public good to own and operate a thermal energy network?

In providing a thermal energy service at least partly analogous to a gas utility, non-municipal entities seeking to own and operate TENs and provide service to the public should be required to obtain a § 231 CPG.

7. The Department suggests that performance requirements should be imposed on thermal energy network operators. How would these performance requirements be implemented?

As TENs are used in the provision of an energy service, the Department specifies consideration of performance requirements like those imposed on regulated utilities under the service quality and reliability plan regime may be appropriate.[3]

8. Should Vermont distribution utilities be permitted to own and operate thermal energy networks?

Yes, regulated utilities in Vermont should have clear, non-exclusive, authorization to own and operate TENs and sell non-greenhouse gas emitting thermal energy within their service territory. With this authorization care should be taken to appropriately monitor the use of

[3] VGS, Successor Service Quality & Reliability Performance, Monitoring & Reporting Plan, 05/13/22, https://puc.vermont.gov/natural-gas/gas-service-quality (specifying performance metrics related to customer service, accurate service accounting, customer satisfaction, safety, service reliability, service guarantees, and performance related customer compensation).

traditional utility ratepayer dollars to ensure that they are not spent on TENs, or if they are spent on TENs, ratepayers get commensurate value (i.e., some combination of a return on investment commensurate with risk, providing value in satisfying efficiency program or renewable energy program requirements, or providing societal benefits through the meeting of emissions reduction requirements). Upon showing that light-touch regulation is no longer necessary to support TENs proliferation, additional restrictions on utility ownership and operation may be appropriate (e.g. distinct rate bases)

9. Please provide rules, guidelines, or decisions from other jurisdictions regarding the use of electric or gas ratepayer dollars to support the development of thermal energy networks.

The Building Decarbonization Coalition ("BDC") in collaboration with the Vermont Law and Graduate School Institute for Energy and the Environment developed a Thermal Energy Networks Legislative Guidebook ("TENs Guidebook").[4] The TENs Guidebook catalogs TENs legislation, suggested regulatory best practices, and TENs study and pilot efforts in various states. Examples of states other than Vermont with statutory language supporting the development of TENs include California, Colorado, Maryland, Massachusetts, Minnesota, New York, and Washington. The most supportive treatments include TENs pilot mandates, designated TENs pilot funds, use of ratepayer dollars for TENs development, "reasonable" cost effectiveness under the societal cost test, and explicit incorporation of TENs as a component of electric and gas system planning.[5]

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[4] Building Decarbonization Coalition & Vermont Law and Graduate School Institute for Energy & the Environment, Thermal Energy Networks Legislative Guidebook, https://buildingdecarb.org/resource-library/tens-legislative-guidebook ("TENs Guidebook").

[5] TENs Guidebook (Statutory Language, tbl.1.2 - referencing TENs pilot mandates in N.Y., Colo., Md.; tbl.2.2, designated pilot funds; tbl.2.1, cost recovery; tbl.1.6 referencing Mass.' "reasonableness" of TENs pilots based on societal benefits; tbl.5.5, utility obligation to serve inclusive of thermal energy; tbl.6.1 gas transition planning; tbl.7.1 – integrated energy planning).

Use of Ratepayer Dollars in Pilot Programs

The use of ratepayer dollars to support the development of thermal energy networks in states that have passed laws to support TENs, is occurring primarily for utility TEN pilot projects. Each of the aforementioned states has included statutory language that either allows or mandates utility TEN pilots.[6] The lessons learned from these pilots will help inform regulations for wider adoption. Of the seven states that have passed TENs legislation allowing or mandating utility TENs pilots, most allow utilities to recover the cost of pilot projects through rate cases with details and conditions varying by state.

Limited use of ratepayer funds may be permissible where subject to appropriate safeguards. Massachusetts permits the Department of Public Utilities (DPU) to allow utilities to recover costs associated with pilot projects including construction, management and operation.[7] While Maryland, Minnesota, and Washington allow for cost recovery of "prudently incurred" costs.[8] California limits permissible cost recovery from utility rates to effectively hold gas customers harmless, "[t]he total cost incurred by the gas corporation for the zero-emission alternative *shall be less than the total cost that would have otherwise occurred*. Gas corporations shall use nonratepayer funding when available."[9] In Colorado, large gas utilities proposing a pilot "shall present to the commission options for how the large gas utility may fund the pilot

[6] TENs Guidebook (Statutory Language, T. 1.2, https://docs.google.com/document/d/1lxszbc9EYZ77N6BhEaFW4cqLuYsTX224iYSa23q7lkM/edit?tab=t.0 (cataloging the treatment of pilot projects by proposed and enacted TENs legislation).
[7] 2021 Mass. Sess. L. Ch. 8, § 99.
[8] Md. Code Ann., Pub. Util. D. I, tit. 7, Subt. 11; Minn. Stat. Ann. § 216B.2403, Subd. 2, 9a; Wash. Rev. Code Ann. § 80.28.450.
[9] Cal. Pub. Util. Code Div. 1, pt. 1, Ch. 3§ 663(b)(2)) (emphasis added); The preceding sentence in this section *provides for determination of cost-effectiveness excluding nonenergy benefits*, i.e. societal benefits.

program, including options that involve the use of any federal or private sources of funding or rate recovery *from nonresidential customers to manage impacts upon residential customers*."[10]

Integrated Energy System Planning and Non-Pipeline Alternatives

Another area where it may be appropriate to use ratepayer dollars to support the development of TENs is as an incorporated component of energy system planning. Massachusetts has not yet enacted legislation that mandates that utilities invest in non-pipeline alternatives such as TENs, but in Order 20-80-B the DPU found that consideration of non-pipeline alternatives ("NPAs") "is necessary to minimize investments in the gas pipeline system that may be stranded costs in the future as decarbonization measures are implemented."[11] The DPU further clarified that "as part of future cost recovery proposals, [Massachusetts gas local distribution companies] (LDCs) will bear the burden of demonstrating that NPAs were adequately considered and found to be non-viable or cost prohibitive to receive full cost recovery." This Massachusetts order recognizes that NPAs are a potentially valuable tool that can be used to decarbonize the gas system and meet the states climate mandates. In states where climate mandates do not exist, NPAs have the potential to reduce the cost of grid maintenance, minimize stranded assets as buildings electrify, and protect ratepayers.

10. Under what circumstances, if any, would it be appropriate for Vermont ratepayers to support the development of thermal energy networks?

It may be appropriate for Vermont ratepayers to support TENs in several circumstances, including where a TEN: (1) is a cost-effective means of satisfying a regulatory requirement; (2)

[10] CRS 40-4-121 § 3(g) (emphasis added).
[11] NPAs are "defined broadly to include electrification, thermal networked systems, targeted energy efficiency and demand response, and behavior change and market transformation" D.P.U 20-80-B Order at 2; Mass. Dep't of Pub. Util, *Order 20-80-B*, 12/05/23, https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/18297602.

is a cost-effective efficiency measure, NPA or where enabling deferral of system upgrades; (3) investment would make ratepayers whole with an appropriate return reflecting the risk of investment. For example, Tier III requires electric utilities to reduce fossil fuel use from their customers, allowing utility investments which cost less than the Tier III Alternative Compliance Payment ("ACP") (on a $/MWh equivalent basis). Based on State emissions targets, where the alternative is new gas infrastructure, applying ratepayer funds to a cost-effective TEN serving the same heating demand while emitting significantly lower emissions (and providing cooling) may be appropriate Finally, as an example of (3), Green Mountain Power relied in part on a positive return for ratepayer dollars invested in justifying its early heat pump program.[12]

10(a). Would thermal energy network investments qualify under Tier 3 of the Renewable Energy Standard?

Yes, provided the TENs investment screens as cost effective pursuant to 30 V.S.A. §§ 8005(a)(3)(C) (reduced fossil fuel consumption and emissions, lowest present value lifecycle cost, and measure cost below the ACP) and 8005(a)(3)(F)(iii) (cost-effectiveness screening consistent with screening under EEU and Integrated Resource Planning requirements). TEN technology is among the most efficient technologies available to heat and cool buildings.[13] Therefore, a net-reduction in fossil fuel consumed by the utility customers and reduction in greenhouse gases attributable to the TENs investment is all but guaranteed given their very high coefficient of performance ("COP").[14]

[12] Docket No. 8190, Order of 08/25/14, 18, 21.
[13] Building Decarbonization Coalition (BDC), Neighborhood Scale – The Future of Building Decarbonization, 11/23, 13, 27, https://buildingdecarb.org/wp-content/uploads/BDC_Neighborhood-Scale-Report_WEB.pdf.
[14] *Id.* at 13. (claiming a 5.7 COP for a networked geothermal) (internal citations omitted). COP represents the ratio of thermal energy produced (or moved) by a heat pump divided by its input energy.

10(b). For gas utility investments, would it be appropriate to evaluate the use of ratepayer funds using a social cost of carbon or similar screen?

Yes. Evaluating the use of ratepayer funds using the social cost of carbon for societal benefit cost analysis is appropriate in the context of utility investments where made outside of existing authorizations for innovative pilots.[15] *However, the societal cost test presents a very low bar when placed beside the high COP and very low emissions of TENs.* Since TENs have high upfront costs and a long payback period, an additional robust ratepayer cost-benefit analysis should apply to TENs screening to clearly consider ratepayer opportunity cost.

12. Please provide current examples from other jurisdictions of approved tariffs for thermal energy network tariffs.

The Department is not aware of any current examples from other jurisdictions where tariffs for thermal energy networks have been approved by a public utility regulatory commission. Though examples of operating networks and rate structures exist.

For example, the municipally owned and operated False Creek Neighborhood Energy Utility ("NEU") system in Vancouver discussed in the Department's previous comment.[16] The NEU rates are:

Monthly capacity charge, Canadian Dollars, excluding tax.[17]

Rate Class	Unit	2025
Class 1: Residential, mixed-use residential within Southeast False Creek	square meter of floor area	$0.674
Class 2: Residential, mixed use residential adjacent to Southeast False Creek	kW of peak heat energy demand	$10.141
Class 3: Non-residential	kW of peak heat energy demand	$10.141

[15] The Department notes the societal cost test should be treated a bare minimum standard.
[16] Department Comment, 03/03/25, 6, note 5; Canadian Centre for Policy Alternatives, Innovative Approaches to Low-carbon Urban Systems: A Case Study of Vancouver's Neighborhood Energy Utility, Marc Lee, 10-11, Feb. 2, 2015, https://policyalternatives.ca/sites/default/files/uploads/publications/BC%20Office/2015/02/CCPA-BC-NEU-Case-Study.pdf (accessed June 5, 2025) (the False Creek system was initially funded by a federal grant, low-interest loans, and municipal self funding),
[17] City of Vancouver, Utility meter rates for water, sewer, and energy, https://vancouver.ca/home-property-development/metered-rates.aspx.

Monthly energy usage charge, Canadian Dollars, excluding tax.

	Unit	2025
Usage charge	kWh	$0.063151

Aside from initial federal support of roughly one third of the system's initial capital, the system is self-funded with rates providing sufficient revenue to cover ongoing debt, capital, and operational expenses, ultimately providing the municipality a return on investment. The Department notes the population density around the False Creek system is multiples of, if not an order of magnitude higher than anywhere in Vermont.

13. What sections of Title 30 of Vermont Statutes Annotated that apply to electric, gas, and water utilities should apply to the financing and rate regulation of thermal energy networks?

The following sections of Title 30 of Vermont Statutes Annotated should apply to the financing and rate regulation of thermal energy networks if subject to a § 231 CPG:

- § 104 Asset transactions
- § 107 Mergers/acquisitions
- § 108 Issuance of securities (already noted)
- § 109 Encumbrances
- § 111 Accounting/reporting standards
- § 209 Jurisdiction of Public Utility Commission over public service companies
- § 231 Certificate of public good; abandonment of service; hearing

14. Would it be appropriate for thermal energy networks subject to the supervision of the Department of Public Service and Public Utility Commission to pay a tax under 30 V.S.A. § 22 to support the work of the Department and Commission? If so, what would be an appropriate rate for that tax?

The Department maintains TENs should generally not be required to seek a § 248 CPG. Should Department review be required, the current rate applied to other regulated energy utilities under 30 V.S.A. § 22 (0.00525 of gross Vermont intrastate revenues) is a reasonable starting point.

16. The Department of Public Service suggests that, due to initially high up-front costs of developing thermal energy networks, a "development authority could be established in Vermont to gain [thermal energy network] market insights on pricing, business models, and [thermal energy network] designs that could then be shared with instate stakeholders." Participants are requested to comment on whether the creation of a development authority would be helpful. If so, would it be housed in an existing institution (such as a State agency) or a newly created public or private entity, and what monies would be used to fund the authority and the projects that it would support?

While the Department suggested that a development authority could be established, some clarification is needed. The intent of the suggestion was to put forward the idea of having a central point of contact for best practices, coordination of available resources, and duties such as the provision of technical support. Given that TENs technology is still relatively nascent and federal funds that could have spurred TENs deployment have recently become scarce, the creation of a new public or private entity to serve in this role would likely be unnecessary in the near term. Instead, housing a development authority within an existing institution such as a state agency could be more appropriate. The creation of a new role at the Department of Public Service to serve in this capacity could be an option if paired with adequate funding.

17. How should environmental justice and service to low- and moderate-income customers/communities be considered in the development of regulations for thermal energy networks?

Given a lack of a demonstration of the economic viability of TENs in Vermont, the Department maintains application of distinct environmental justice ("EJ") regulations to TENs would be premature at this time. Placing additional requirements on systems that, to the Department's knowledge, cannot be economically built, would thwart both development and the

goals of any such regulation. Further, Vermont's existing policies and regulations provide incentives to TENs developers proposing developments that benefit Vermont's EJ communities.[18]

The Department supports light-touch regulations under a pilot projects regime. Light-touch regulation could involve Commission consideration of a pilot's potential contribution to advancing technical or financial methods that facilitate equitable and affordable building decarbonization. Or whether a pilot project offers benefits for customers such as improved public health, affordability or reliability. Climate Action and Innovation program requirements could be modified to incentivize projects located in frontline and impacted communities.[19]

The eventual development of Thermal Energy Exchange Network (TENs) presents an opportunity for Vermont to facilitate a just transition as the state looks to decarbonize the buildings and thermal sector of the State. When implemented, the concept of a just transition ensures that no one is left behind in the transition to a sustainable, inclusive, and equitable low-carbon economy.[20] As Vermont works to decarbonize its buildings, this means ensuring that *all* demographic groups in the State benefit. However, based on historic and present context the needs of frontline and impacted communities must be prioritized in planning for allocation of benefits to these communities throughout the transition away from fossil fuels to a low carbon future.[21]

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[18] Act 154 of 2022 (equitable share of benefits and burdens; designation of State funds for EJ communities); 10 V.S.A. § 6001(D)(viii) (Act 250 exemptions for priority housing projects); *See* Case No. 22-4421-INV (Commission approval of Tier III plans including requirements that regulated utilities provide a certain portion of program benefits to low-income customers.

[19] VGS Alternative Regulation Plan, Case No. 22-5085-PET, Filing of Oct. 26, 2023, 13-15; BDC, TENs Guidebook, 26, https://docs.google.com/document/d/1rB9OR6xL9EHBtFYFV-2nXHeZ4xOKlj_PaWb66xdTQT8/edit?tab=t.0#heading=h.l526r2k0godt.

[20] Vermont Climate Counsel Just Transitions Subcommittee, Guiding Principles for a Just Transition, 08/21, https://climatechange.vermont.gov/content/guiding-principles-just-transition.

[21] *Id.* at 5-7.

While there is no specific road map for a just transition, Vermont's transition must reflect local realities and be based on stakeholder engagement with context specific analysis and strategies. This means that environmental justice and low- and moderate-income communities must be given the opportunity for meaningful involvement in the TENs regulation decision-making process to ensure acknowledgement and prioritization of their needs where feasible. Careful consideration of just transition principles in developing Vermont's ultimate TENs regulations as well as specific TENs design and siting decisions, are key.

Upon showing of economic viability of TENs in Vermont, development of regulations explicitly including equity and environmental justice provisions prioritizing elements such as affordability, accessibility, and customer protection will be appropriate. Vermont's workforce should also be considered in the development of TENs regulations. For example, including provisions that address impacts on the fossil fuel workforce as a result of TENs deployment by requiring developers to hire locally or facilitate the hiring of historically disadvantaged groups at prevailing and livable wages.

19. The comments from Deborah New and James A. Dumont recommend several changes to Title 30. Please provide any responses to this proposed language.

Changes proposed by New and Dumont to explicitly extend Commission jurisdiction over TENs under 30 V.S.A. § 203, with slight modification to reflect service provided to the public, are appropriate. This change is intended to make § 231 CPG requirements generally applicable without including municipalities where otherwise exempted.[22]

[22] Lueders Public Comment of 03/03/25, 1-2 (comment of Deborah New and James A. Dumont, Esq., "New & Dumont Comments"). Mutual benefit enterprises, cooperatives, or common interest community systems without non-owner or non-member customers would still be exempt under 30 V.S.A. § 201(8).

[add 30 V.S.A. § 203](7) a person or company, other than ~~a municipality or~~ [an] entity otherwise exempted by [statute or] the Commission under rules promulgated pursuant to section 256 of this title, that owns or operates a thermal energy exchange network [providing service to the public] as defined in section 201 of this title;

Dated at Montpelier, Vermont this 30th Day of June 2025.

VERMONT DEPARTMENT OF PUBLIC SERVICE

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