



CENTRAL HUDSON

Thermal Energy Network

Pilot Plan

October 2022

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1. BACKGROUND

Thermal energy networks offer numerous potential benefits for customers and communities, including reductions in greenhouse gases (GHG) and other climate emissions through the decarbonization of buildings and communities. To help meet New York State's Climate Leadership and Community Protection Act (CLCPA), New York State Governor, Kathy Hochul, signed the Utility Thermal Energy Network and Jobs Act (the Act) into law on July 5, 2022.¹ The Act seeks to remove legal barriers to utility development of thermal energy networks. Specifically, it requires the New York State Public Service Commission (PSC) to oversee utilities' thermal energy network pilot programs. Furthermore, the Act directs the Department of Public Service (DPS) to develop a regulatory structure that scales affordable and accessible building electrification, protects the interest of customers, and prioritizes the development of a well-trained, highly skilled labor force that will be needed to support the development of new thermal energy network projects. This effort is intended to promote strong economic development and good jobs for local residents in the expanding decarbonized market.

The Act directs the state's seven largest gas and electric utilities to develop and propose thermal energy network pilots to the PSC by October 5, 2022, with the following research objectives:

- How, if at all, are thermal energy networks in the public interest?
- How, if at all, do thermal energy networks reduce up-front and operating costs of building electrification for customers?
- How, if at all, do thermal energy networks provide an efficient and reliable clean alternative to natural gas?
- Can the transition to thermal energy networks provide sufficient support to the impacted labor pool?

These pilots are to be developed in coordination with other utilities and NYSERDA. On September 15, 2022, The PSC issued the Order on Developing Thermal Energy Networks Pursuant to the Utility Thermal Energy Network and Jobs Act (Order). The Order directed the named utilities² to submit compliance filings that include proposals for one to five thermal energy pilot projects, with at least one project located in a disadvantaged community,³ by October 5, 2022.⁴ The proposals should include available project details, such as the number of potential energy users, engineering project design plans, proposed metrics to measure the projects' effectiveness, and the specific location and customer selected. Recognizing that additional time may be necessary to develop such details, the PSC further directed the named utilities to submit more detailed proposals by January 9, 2023. The Order further stipulates that DPS staff shall convene at least one public technical conference and provide a report to the PSC on the status of the proposed projects as well as location and customer(s).

The DPS will provide a public report by September 15, 2023, that includes a summary of findings from the technical conference, the status of each pilot project initially submitted, the lessons learned to date, identification of any critical market barriers or issues requiring resolution, construction and design

¹ Utility Thermal Energy Network and Jobs Act. Senate Bill S9422/Assembly Bill A10493 (2022).

² Named utilities include Consolidated Edison, Orange & Rockland Utilities, New York State Electric & Gas, Rochester Gas & Electric, Central Hudson, National Grid, and National Fuel Gas.

³ If a utility proposes five projects, then two should be located in disadvantaged communities.

⁴ The PSC adjusted the filing date on September 30, 2022, from October 5 to October 7, 2022, and is referenced as such throughout this document.

standards used, and an estimated timeframe and process for developing proposed rules and regulations regarding the thermal energy networks.

The remainder of this document presents background information, including a summary of the proposed pilot and related feasibility study; provides key definitions; outlines the intended implementation plan, including screening criteria; identifies pilot cost categories and a proposed cost-recovery mechanism; outlines a high-level customer protection plan; and reviews the overarching pilot goals and reporting requirements.

1.1. PILOT OVERVIEW SUMMARY

Central Hudson will design the Thermal Energy Network pilot (Thermal pilot) to test the feasibility and economics of using thermal network applications to replace natural gas, which will consequently inform the PSC's future promulgation of regulations governing thermal energy networks. The pilot will also support the climate justice and emissions reduction mandates of the CLCPA by providing thermal energy to participating customers in a designated disadvantaged community. In addition, it will test financial and technical approaches to equitable and affordable building electrification that, among other attributes, may mitigate up-front cost barriers to individual customers while investing in clean energy infrastructure. Furthermore, the pilot is expected to create benefits to participating customers and to society at large, including public health benefits in areas with disproportionate environmental or public health burdens, job retention or creation, reliability, and increased affordability of renewable thermal energy options.

During the initial phase of the pilot period,⁵ Central Hudson will work directly with interested qualifying customers to identify a project site. Central Hudson will conduct a site review, develop site plans, and establish a funding mechanism for the costs associated with the pilot project. In addition, Central Hudson will work collaboratively with the participant(s) to conduct ongoing evaluation, measurement, and verification (EM&V) for a period of three years.

Central Hudson seeks to identify and select the pilot site and participant(s) in advance of the January 9, 2023, filing date, anticipating required funding of between \$2 million and \$5 million.

In addition to project development funding, Central Hudson will be responsible for managing all utility-owned project infrastructure and where there is alignment with current construction and maintenance practices, Central Hudson will strive to utilize Utility Employees and/or Utility contractors in the installation and maintenance of the system.

1.2. GEOTHERMAL DISTRICT LOOP FEASIBILITY STUDY

Within the order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan,⁶ Central Hudson was directed to undertake a geothermal district loop feasibility study to identify areas within its service territory where the potential for loop pilots might exist. The feasibility study has a budget of up to \$250,000, which will be recovered from Central Hudson's electric customers. Central Hudson is in the process of competitively soliciting a qualified consultant with technical expertise to perform the study. A Request for Proposal was released on September 2, 2022, with responses requested by mid-October.

⁵ The pilot period is defined later in the document as a three-year period from when the first project is complete and providing services to the participant.

⁶ Issued and effective November 18, 2021, cases 20-E-0428, 20-G-0429, 20-M-0134

Selection of the consultant is expected to occur by early November, with work to commence by the end of 2022.

While it is likely the feasibility study will identify sites that would be good candidates for the Thermal pilot, the results of the feasibility study are not anticipated until April 2023 and would not be available in time to include in the Thermal pilot proposal currently due on January 9, 2023. Central Hudson plans to leverage any potential synergies between the Thermal pilot and the feasibility study while managing compliance obligations with both efforts.

2. DEFINITIONS

Suitable Site: A site with multiple customers and/or buildings where it is feasible to construct and supply energy needs through a thermal energy network.

Central Hudson Thermal Energy Network Pilot Program: The pilot program that implements thermal energy network(s), which will be owned and maintained by Central Hudson.

Disadvantaged Community: To identify disadvantaged communities, Central Hudson will use the Draft Criteria and List from the Climate Justice Working Group filing on December 13, 2021, until the Final Criteria are adopted.

EM&V: Evaluation, measurement, and verification. Central Hudson anticipates contracting with a third-party to evaluate the pilot program.

Participant: A customer who partners with Central Hudson to receive thermal energy service under the pilot.

Pilot Period: The pilot period is a three-year period from when the project is complete and providing services to the participant.

Public Interest: The ability of the pilot project to develop information useful for the PSC's promulgation of regulations governing thermal energy networks. This includes whether the pilot project furthers climate justice and/or emissions reduction mandates of the climate leadership and community protection act, whether the pilot project advances financial and technical approaches to equitable and affordable building electrification, and whether the pilot project creates benefits to customers and society at large, including to public health benefits in areas with disproportionate environmental or public health burdens, job retention or creation, reliability, and increased affordability of renewable thermal energy options.

Ownership: Central Hudson will own and maintain all network infrastructure and the customer will own and maintain internal building equipment (e.g., heat pump system.)

Thermal Energy: Transfer of heat into and out of buildings via piped non-combustible fluids for the purpose of heating and cooling processes, including comfort heating and cooling, domestic hot water, and refrigeration.⁷

Thermal Energy Network: All real estate, fixtures, and personal property operated, owned, used or to be used for or in connection with or to facilitate a utility-scale distribution infrastructure project that supplies thermal energy.⁸

Utility-Side Work: All project-related work associated with the installation of the energy thermal network external to the participation customers facility (e.g., front-of-the-meter.)

⁷ New York State. Senate Law 9422.

⁸ Ibid.

3. SCREENING CRITERIA

Central Hudson designed the pilot's screening criteria to encourage the installation of thermal energy networks in its service territory, while also focusing on the following key criteria:

- **Customer:** Both public and private (e.g., residential, for-profit, and not-for-profit) entities may be eligible to participate.
- **Location:** Is the project site in a disadvantaged community?
- **Facility Type:** How many buildings are part of the project site? If one building, what is the likelihood that the initial project may lead to additional project sites for the same or other customer(s)? Are there diverse loads required by the site buildings (e.g., food service, dorm and/or office style buildings)? Is the site a residential, nonresidential, or mixed site? Does Central Hudson provide natural gas only or both gas and electric to the facility?
- **Facility Status:** For existing facilities, do the current the natural gas distribution pipes serving the site need to be replaced (e.g., leak-prone pipe)? What is the current consumption by building and total within the site? What type of system and in what condition are the current heating and cooling systems?
- **Stakeholders:** Who owns property within the project site? How many customers and decision-makers are part of the site? How interested are they in clean energy infrastructure projects?
- **Space and Geology:** How close are buildings within the project site? Is there space for drilling wells? Is the geology conducive for drilling and functionality of wells?

For the pilot period, Central Hudson will evaluate potential projects based on these criteria and select one site for the initial pilot installation.

4. IMPLEMENTATION

With the Thermal pilot, Central Hudson seeks to create a demonstration project within its service territory and generate learnings, awareness, and interest in thermal energy networks.

Customers will generally begin their project journey through the Thermal pilot, with targeted outreach by Central Hudson, but customers could also initiate the process. The journey continues through the site proposal, selection, and agreement process before moving on to infrastructure installation and EM&V.

1. **Targeted Outreach.** Central Hudson will identify customers with potentially suitable sites in disadvantaged communities within its service territory and then conduct targeted outreach to identify a pool of potential pilot sites.
2. **Site Screening and Selection.** Central Hudson will collect additional information relevant to the screening criteria and assess the viability of each potential site using the screening criteria above.
3. **Agreement.** Central Hudson will draft a project agreement detailing the customer-side work and utility-side work, funding, and timeline for the project. Once the project agreement is signed by all participating parties, work on the project can begin.
4. **Design and Permitting.** Central Hudson will work with a consultant design firm specializing in thermal network design and installation.
5. **Infrastructure Installation.** Central Hudson is responsible for completing the utility-side work for the site. Where there is alignment with current construction and maintenance practices, Central Hudson will test utilization of Utility Employees and/or Utility contractors in the installation and maintenance of the system.

6. **Construction QA/QC.** Throughout construction, Central Hudson will complete regular assessments of the installation to ensure compliance with design and permit requirements.
7. **Final Inspection.** Upon completion, a representative of Central Hudson will complete a final site assessment to verify that the project is finalized.
8. **Ongoing Maintenance.** Central Hudson will provide ongoing maintenance for all utility-owned project infrastructure and will employ union labor in compliance with the Act.
9. **EM&V.** In addition to providing quarterly reporting insights (see section 7), Central Hudson will collect data for the three year period following each pilot project installation. Central Hudson will coordinate, as appropriate, with the other New York State Utilities and NYSEERDA to define key operational data (e.g., via metering) and develop standards for data collection. The data will provide information to the PSC that will inform the development of future thermal energy network regulation; further climate justice and emissions reduction mandates of the CLCPA; advance financial and technical approaches to equitable and affordable building electrification; and document the associated thermal energy network benefits to customers and society at large.

Table 1 presents the pilot milestones and Table 2 presents the additional supportive milestones that will inform future pilot phases.

Table 1. Pilot Program Milestones

Milestone	Description	Target Date
DPS Initiates Thermal Energy Network proceedings	DPS initiates proceedings, which will cover the appropriate ownership, market, and rate structures for thermal energy networks and whether the provision of thermal energy services by gas and electric utilities is in the public interest.	September 15, 2022
Compliance Filing	Submission of this document to the PSC for consideration.	October 7, 2022
Pilot Site Selection	Completion of customer journey steps 1 through 2.	TBD
Pilot Submission and Approval	Central Hudson submits proposed project(s) and PSC approval process commences.	January 9, 2023
Pilot Site Agreement	Completion of customer journey steps 3.	TBD
Pilot Project Development	Completion of customer journey step 4 and 7.	TBD
Pilot Project EM&V	Completion of customer journey step 9.	Period of three years

Table 2. Support Milestones

Milestone	Description	Target Date
Thermal Energy Network Feasibility Study Released	Central Hudson releases the thermal energy network feasibility study Request for Proposals from qualified vendors.	September 2022
Feasibility Study Vendor Selected	Central Hudson selects a vendor to conduct the thermal energy network feasibility study.	December 2022
Feasibility Study Completed	Completion of Central Hudson's thermal energy network feasibility study.	Q2 2023
Thermal Energy Network Rules and Regulations Developed	PSC develops rules and regulations that create fair market access for utility-owned thermal energy networks to accept thermal energy that aligns with the climate justice and greenhouse gas emissions reductions requirements of CLCPA and that does not increase greenhouse gas emissions or co-pollutants; exempts small-scale thermal energy networks not owned by utilities from commission regulation; promotes the training and transition of utility workers impacted by this act; and encourages third-party participation and competition where it will maximize benefits to customers.	June 2024

5. PILOT COSTS & CUSTOMER PROTECTION

The section describes the supporting pilot costs, cost recovery, and customer protections for Central Hudson's Thermal pilot.

5.1. PILOT COSTS

Table 3 presents the anticipated expected costs categories and the responsible parties.

Table 3. Pilot Costs Categories and Responsible Parties

Category	Description	Responsible Party
Infrastructure	Construction, materials, and long-term operations and maintenance (O&M) associated with the thermal network.	Central Hudson
Planning and Evaluation	Pilot development, design, data tracking, reporting, recruiting, and market research.	Central Hudson
Program Administration	Internal staffing need.	Central Hudson
Facility Retrofits	Internal HVAC/distribution work needed for thermal service.	Central Hudson or Participant
Thermal Fees	The participant's contribution in exchange for receiving thermal energy ^a	Participant

^a Designed to be less than (Gas Savings – Increased Electric Cost – Retrofit Cost).

5.2. COST RECOVERY

All costs incurred as a result of the pilot will be deferred for future collection from customers, with carrying charges accrued at the Central Hudson's weighted average cost of capital. Costs include O&M incurred to develop and operate the pilot, as well as the revenue requirement effect (return on and return of) of capital investments. These costs will be offset by any thermal revenues generated by the program.

Upon PSC determination, Central Hudson will commence a surcharge to collect all net costs incurred to date, as well as any accrued carrying charges, over the subsequent 12-month period. From that point forward, the surcharge will be reset annually to initiate collection of net costs incurred for the prior program year, along with a reconciliation of the over or under collection from the prior period and accrued carrying charges.

As it relates to capital expenditures, once the asset is placed in service, the cost of the asset will be amortized for collection over a 10-year period.

In accordance with the Order at page 15, that "the requirements of PSL §66-t ... are to apply to the gas side of the utility", Central Hudson will initially allocate costs to gas customers for the purpose of this limited demonstration pilot. As Central Hudson develops a greater understanding of the costs associated with the development and implementation of thermal systems for this demonstration pilot or future pilots, Central Hudson may recommend that cost allocation be broadened or revisited within a future rate case.

The Act states in various parts of §66-t that the development of thermal systems applies to "gas and/or electric utilities" and to "gas, electric, or combination gas and electric corporations". Inclusion of electric utilities as a standalone category indicates that the legislature contemplated that thermal services would be provided to, and costs would be recovered from, electric customers. Second, development of thermal systems is but one building block of the state's transition plan for electrification, implying

implicitly that capital and operating expenses associated with the utility's portion(s) of a thermal system should be allocated to electric and/or in common accounts. Third, allocation of said costs to a diminishing base of gas customers would, necessarily, involve increasingly high 'exit surcharges' on remaining customers.

5.3. CUSTOMER PROTECTION PLAN

Central Hudson has designed the following protections into the pilot design:

- Central Hudson will own and maintain all network infrastructure, thereby minimizing the financial risk while ensuring delivery of service to participating customers.
- Central Hudson will design the thermal energy fee to result in, at most, a neutral financial impact on participating customers (i.e., the fee will be designed so that participant customers operating costs do not exceed anticipated operating cost if they had not participated in the pilot.) The thermal fee will take into account whether Central Hudson or the participant pays the upfront cost to retrofit facilities in accordance with the agreement.
- All selected projects will employ professional and appropriately licensed individuals to perform project installation and on-going maintenance.
- Central Hudson will consider working with a suitable vendor to provide an extended warranty for required equipment within the participants' facility to maintain efficient and reliable operation.

6. PILOT GOALS

The goals for the Central Hudson Thermal pilot program are presented below:

- Confirm site design and configuration options
- Achieve customer agreements and establish metering procedures
- Provide ongoing maintenance
- Provide a scalable framework as a guide for future projects and workforce development
- Prove viability of district geothermal networks as cost-effective method of full building electrification
- Provide electrification solution to disadvantaged communities

7. REPORTING

Central Hudson will fulfill all necessary reporting requirements. Specifically, Central Hudson will provide quarterly performance reports to the PSC following project installation. The PSC will publicly post these reports.

The report shall include the following topics:

- Pilot project stage of development
- Identified barriers to development
- Number of customers served
- Costs of the pilot project
- Number of jobs retained or created by the pilot project

Central Hudson will include additional information as directed by the PSC that is determined to be in the public interest.