



NSTAR GAS COMPANY

GEOHERMAL DEMONSTRATION PROJECT

IMPLEMENTATION PLAN

Q2 2021 REPORT

D.P.U. 21-53

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Executive Summary

NSTAR Gas Company d/b/a Eversource Energy (“NSTAR Gas,” “Company” or “Eversource”) is investigating the feasibility of networked, utility-provided geothermal energy for heating and cooling. As a low-carbon resource, geothermal networks have the potential to be a critical resource in supporting the Commonwealth’s greenhouse gas (“GHG”) emissions reduction targets.

On October 30, 2020, the Department of Public Utilities (“Department”) issued an order approving the Mixed Use, Dense Urban Environment geothermal demonstration project (“Pilot”) proposed by NSTAR Gas. NSTAR Gas Company d/b/a Eversource Energy, D.P.U. 19-120, at 128-156 (2020) (“Order”). The Pilot will use public ways to serve customers over a geographical footprint that is wider than typical geothermal projects. The Pilot must include servicing a large mixed-use profile (residential and commercial/industrial customers) in a dense urban environment somewhere in the NSTAR Gas service territory.

The purpose of the Pilot is to yield information about customer interest in and the reliability, scalability, effectiveness, feasibility and costs of geothermal networks. As a first-of-its-kind in the country initiative, the Pilot will advance knowledge in the field and inform future applications of geothermal technologies by generating data and insights about design, construction, and maintenance of geothermal networks. Historically, large upfront capital costs and infrastructure maintenance have been significant barriers to geothermal network adoption.

Eversource is uniquely positioned and qualified to overcome these barriers by building and maintaining geothermal networks in public ways, leveraging its experience in managing a capital-intensive gas business that includes building, operating and maintaining underground infrastructure and providing safe and reliable service to customers. At the same time, Eversource is actively learning about this technology, which though proven is new to the Company and industry at utility scale, and the associated market conditions and opportunities for connecting multiple customers in a shared loop system.

The Order required the Company to submit for Department review an implementation plan prior to the Company’s enrollment of customers in the Pilot. Order at 153-54. This Implementation Plan provides additional Pilot information to comply with the Department’s directives and to document the Company’s progress to date. The Company expects to be ready to enroll customers by the third quarter of 2021, pending further input from third-party experts who will support the ultimate site selection and customer acquisition process.

Project Background

The Pilot must include servicing a large mixed-use profile (residential and commercial/industrial customers) in a dense urban environment somewhere in the NSTAR Gas service territory. Order at 142-43. To the extent feasible, the Pilot customer group should

include delivered-fuels customers, existing natural gas customers and a low-income multi-family building for conversion. Id. at 139, 143. This Pilot will provide useful data and insights on the geothermal networks in general and the potential for installing them in public ways to distribute geothermal energy.

Key Milestones as of Q1 2021

1. Standard Terms and Conditions

The Order requires the Company to submit standard terms and conditions to the Department before enrolling customers. Order at 154. The Company has developed a standardized customer agreement that outlines the responsibilities of the Company and participants and includes consumer protections for participants. In addition, the agreement sets forth the rights of the Company and participants with respect to installation,¹ notice, non-payment, late charges, fees, termination of service, in-home equipment damage/malfunction, access to premise, maintenance obligations, loss/damage, liability, system removal and decommissioning implications. The customer agreements executed in relation to the Pilot will necessarily reflect the circumstances of that customer, e.g., tenants/landlords, single family residences, and businesses. Please see Attachment A for the Company's standardized customer agreement.

Initially, the Company had proposed to charge customers a quarterly fee as part of participating in the Pilot. The purpose of the fee, as originally envisioned, was "to establish a billing relationship and to test how to charge for this service in the future" and "to offset the cost of the project." Id. at 130 (citations omitted). After further evaluation, the Company proposes a monthly billing charge as more administratively efficient and more consistent with existing utility-customer relationships. The Company's customer agreement contains an attachment detailing the billing classes and indicative monthly rates (see Attachment A, Exh. D).

2. Site Evaluation and License Agreement

The Company has developed a standardized site evaluation and license agreement. This agreement provides permission in the form of a license for the Company to access the site in order to evaluate the feasibility of the site for the Pilot. The agreement memorializes mutual agreements and respective obligations with respect to assessment of the site. Please see Attachment B for the Company's standardized site evaluation and license agreement.

3. Procurement for Consulting and Contractor Services

The Company has been involved in meeting and engaging vendors as part of building its vendor ecosystem for the Pilot and potential future geothermal opportunities. Many new

¹ "Once installed, the participant will own and maintain all in-home equipment, and the Company will own the geothermal network equipment outside the home (e.g., piping, pumps, control panels, cooling towers)." Order at 130.

vendors have been registered with the Company's procurement department. The process to include and evaluate vendors involves considering technical skill, expertise and experience as well as vendor pricing, diversity, sustainability and commercial considerations. The vendor pool is varied given the state of the geothermal industry and the Company looks to understand industry dynamics and involve impactful vendors in this space to make the Pilot a successful project.

The Company has been developing request for proposals ("RFPs") to solicit such services in a competitive and equitable manner for the Pilot. On March 24, 2021, the Company issued its first RFP to retain a consultant(s) ("Consultant(s)") to develop and support the Pilot project by assessing the feasibility of potential candidate sites within the NSTAR Gas service territory that would satisfy the requirements of the Pilot. The Consultant(s) will assist the Company with site selection and subsequent customer acquisition. The Company is seeking expertise in geothermal networks and general feasibility knowledge, including, but not limited to, design engineering and building stock analysis. The Company anticipates issuing subsequent RFPs to retain consultants to support the next phases of the Pilot, including detailed design, installation and operation and maintenance of the geothermal network and evaluation of the overall Pilot. Those RFPs are currently under development.

4. Project Timing

As conceived, the Company initially estimated that the site selection and customer acquisition part of the Pilot would take approximately five and a half months to complete. Completion of these tasks will take longer given the complexity of securing a site that meets the criteria needed to ensure a successful Pilot amid the ongoing COVID pandemic. As a result, the Company requires additional time to secure the final Pilot site and anticipates that the final site will be selected and customers will be acquired by late summer 2021. In addition to securing the final site and customers, Eversource has been undergoing a search for qualified staff to help run the Pilot. Hiring qualified staff dedicated to the Pilot is taking longer than anticipated. The procurement for a third-party consultant or contractor expertise is underway as noted in the section above.

Stakeholder Engagement

The Company remains committed to regular communication with key stakeholders throughout the lifecycle of the Pilot in order to solicit feedback, both on a formal and informal basis. Please see Attachment C for a detailed table of all major stakeholder outreach.

As required by the Order, the Company continues to monitor HEET's "Community Charrettes." Order at 153. To date, the Company has attended and participated in four charrettes. Eversource has made a formal presentation informing participants about the Pilot at one of the opening charrettes and regularly participates in the charrettes offering information and answers about the Pilot progress. The purpose of monitoring these charrettes is to incorporate relevant feedback from experts in the geothermal industry and community groups

where appropriate, and Eversource has used such events as an opportunity to meet and connect with experts and interested parties in geothermal energy as a follow up to these charrettes.

The Company launched a dedicated portion of the Eversource external website to provide Pilot information.² A project email, geothermal@eversource.com, was established as an interactive option for individuals or groups to submit locations for potential Pilot sites and contact the project team. The goal is that this section of the website will drive education and awareness about geothermal networks through the Pilot and the anticipation is that the site will be a dynamic place for all stakeholders or interested parties to see progress along the entire lifecycle of the Pilot, learn and be able to submit feedback or questions. This will not replace the direct communication and feedback loops anticipated with the actual selected Pilot site participants; rather it will augment the initial outreach and solicit visitors to the site to submit potential site locations if they so desire. The Company is also developing a social media outreach plan to drive traffic to the specific geothermal section of the Company website and to inform viewers about the Pilot and geothermal technology.

In addition, the Company plans to engage with key stakeholders for their input on site selection prior to commencing the project. The plan to do so is currently being developed in conjunction with the Company Community Relations teams and other internal support.

Finally, NSTAR Gas must demonstrate that it coordinated with the Attorney General to ensure that the data and insight gathered from the Pilot will be sufficiently distinct from the geothermal network that will be developed in the Greater Lawrence area. Order at 151. To date, Eversource has had two meetings with Attorney General and Department of Energy Resources (“DOER”) representatives on coordination of both pilots. Given the status of both pilots, it was agreed upon by all parties that future outreach would occur once either (1) the Attorney General and DOER had a firmer timeline and plan for progressing the Greater Lawrence pilot or (2) the Company narrowed down its ultimate site selection and associated customer group.

Potential Sites for Selection

To date, the Company has undertaken preliminary evaluation of potential sites in the following cities within the NSTAR Gas service territory: Boston, Framingham, Somerville, and Worcester. The search for the best Pilot site is not limited to those cities but proponents of the Pilot, including the city officials and representatives, have met with the Company to discuss the Pilot needs and opportunities. The Company expects that once the feasibility RFP mentioned above is completed, the Consultant(s) will assist the Company in final site selection and customer acquisition. The bidders were not provided any details about potential sites in the feasibility RFP. The Company will provide an update to the Department on progress regarding site selection prior to the final site selection.

² <https://www.eversource.com/content/ema-c/residential/save-money-energy/explore-alternatives/geothermal-energy>. Users can click through the site to find the towns that are eligible for the Pilot.

Cross-Functional Support

Since receiving approval for the Pilot on October 30, 2020, the Company has engaged a multi-disciplinary and cross functional team to assist in the development of the Pilot. Clean Gas Technologies has taken the lead in coordinating this team with the support of Regulatory, Revenue Requirements, Energy Efficiency, Gas Sales, Gas Engineering, Legal, Procurement, Community Relations, Communications and Environmental. The Eversource Environmental group is providing the necessary environmental due diligence to identify potential or existing environmental liabilities. The Eversource Real Estate group will be supporting the Pilot by working directly with the various property owners involved with the project. The Real Estate Group will assist with the necessary due diligence, such as preparing and filing property licenses, easements, and property surveys.

Eversource Gas Construction has been briefed on the Pilot and will be involved in coordinating the scheduling and installation of the geothermal network, especially if it involves converting existing Company customers. The Company will develop an outage mitigation or conversion plan to minimize any impacts on participants as they are converted to geothermal energy. Gas Construction will be advised of opportunities during the construction phase to observe and learn about geothermal installation techniques. Eversource Safety will provide support to create a safe construction and work environment consistent with Company policy, including its COVID-19 precautions. All Eversource employees and participating contractors must abide by the safety standards in effect for the Company.

Additionally, the Company has undertaken a search for a project manager and engineer who will be completely dedicated to managing and supporting the Pilot. As noted below, hiring qualified, dedicated staff for the Pilot has taken longer than anticipated but the Company is still continuing with the appropriate staff requisitions.

Participant Recruitment

The Company has engaged its Community Relations and Communication Strategy groups to leverage existing relationships to discuss the Pilot opportunities in the NSTAR Gas communities and develop marketing materials to facilitate discussion and customer interest. These groups will coordinate with the Consultant(s) to be hired as part of the RFP issued on March 24, 2021 and will continue to leverage existing relationships in order to facilitate the acquisition of customers, engage and update municipalities on the Pilot opportunity and align, to the extent practicable, Pilot and municipal construction projects. The Company will also remain engaged in the HEET sponsored charrettes and continue to coordinate meetings with interested potential customer groups and communities based on any joint efforts by HEET and the Company. Lastly, the Company will coordinate Pilot information, any planned virtual information sessions and the website mentioned above.

Next Quarter Milestones Forecast

1. Procurement and Staffing

Within the second quarter 2021, the Company expects to hire the Consultant(s) to assist in the development of the Pilot, identify potential Pilot sites (including efforts to include a low-income, multi-family building) and assist with customer acquisition and stakeholder outreach. The Company will also continue developing RFPs to retain consultants to support the next phases of the Pilot, including detailed design and installation of the geothermal network, and efforts to identify and onboard potential vendors qualified to perform this work. The Company also expects to hire a Project Manager for the Pilot.

2. Site Selection and Customer Acquisition

Over the next quarter, the Company expects to achieve significant progress in determining the final site(s) for selection and the corresponding implementation of the customer acquisition plan. The Company will provide the Department with a status update when material milestones are achieved on those fronts. The Company also expects to continue engaging and coordinating stakeholder outreach opportunities to inform and involve the communities and stakeholders interested in the Pilot.

3. Pilot Modifications – Customer Benefits

The Order requires the Company to describe in detail whether and how it plans to modify the Pilot or its evaluation plan to include existing gas customers and address the potential assessment of scalability to existing gas customers. Order at 154. Ultimately, the Company must demonstrate the Pilot directly benefits customers through their participation in the Pilot or by yielding findings to inform the scalability of networked geothermal for existing gas customers. Order at 147-48.

The main modification the Company has made to date is the intent to bill customers monthly rather than quarterly. A monthly bill will be most similar to how customers are billed currently for energy services by their respective utilities and thus will maintain or create consistency with utility billing for them.

The Company is in the preliminary stages of site identification, which will ultimately proceed to site selection for inclusion in the Pilot. One of the data points the Company considers when evaluating potential site is the inclusion of current NSTAR Gas customers within the site. The preliminary sites being evaluated include current customers within the footprint of the site. Once the Company has made the final site selection, it will provide a detailed update to the Department including information on current NSTAR Gas customer participation in the Pilot, as well as a description of any Pilot modifications made to include current NSTAR Gas customers in the Pilot. Additionally, the Company will provide additional information on any Pilot modifications undertaken to enhance benefits to NSTAR Gas customers as a whole.

Regarding modifications to the Pilot evaluation plan to address the potential assessment of scalability to existing gas customers, it is premature to identify any modifications prior to the Company's retention of an evaluation consultant. Following the Company's retention of the Consultant(s) addressed earlier in this Report, the Company will conduct a competitive process to identify and retain an evaluation firm to conduct the necessary assessments and evaluations of the Pilot consistent with the Department's order in D.P.U. 19-120. Following the retention of the evaluation firm, the Company will consult with the firm to develop a comprehensive evaluation plan for the Pilot, including the potential assessment of the scalability of the Pilot to existing gas customers. The Company will provide the Department with a detailed update on the evaluation plan following its development in concert with the selected evaluation firm.

4. Budget and Cost Tracking

The Company has undertaken preliminary analysis on projected sample customer bills so that potential customers can understand what their entire energy bill will look like if they participate in the Pilot. This entails not only providing the monthly fixed charge to participate in the Pilot but also would capture indicative costs to anticipate an increase in electric costs as a result of the customer conversion to the Pilot by building stock/customer class. This type of analysis will provide customers with full transparency and a holistic view of their entire energy costs and savings as part of the Pilot.

After the site selection has been finalized, the Company will submit an updated project budget and sample customer bill impacts that incorporate all the Department's directives and project modifications. Order at 154.

The Company developed a distinct accounting structure to ensure that geothermal costs were isolated from all other distribution-related costs and were incremental to existing or business-as-usual investments. The geothermal accounting structure started with the creation of new lines of business for the geothermal program for recoverable ("tracked") and non-recoverable ("non-tracked") costs. The separate lines of business are listed below:

- GEOTHERMAL PILOT NON TRACKED 11800
- GEOTHERMAL PILOT TRACKED 12120

The Company will also utilize work orders to specifically track costs. Each work order will be linked to either the tracked or non-tracked line of business. Currently, the Company has created one tracked work order and one non-tracked work order. Cost elements are used within these work orders to track the types of charges being incurred such as internal labor, contractor costs, consultants, material, etc. For existing employees, i.e., those individuals employed prior to November 1, 2020, all of their labor expense and productive and non-productive time will remain as an expense in the employee's home cost center and charged to the non-tracked work order. All outside services procured to design/implement/construct the geothermal Pilot will charge the tracked work orders and be recoverable through the Geothermal Energy Provision ("GEP") in the Company's Local Distribution Adjustment Clause ("LDAC") tariff. In the event that

the Company needs to identify charges further than explained here, additional work orders can be created as either tracked or non-tracked for specific reporting and analysis needs.