Bess B. Gorman
Assistant General Counsel & Director

Via Electronic Mail

August 25, 2021

Mark D. Marini, Secretary
Department of Public Utilities
One South Station, 5th Floor
Boston, MA 02110

Re: Boston Gas Company d/b/a National Grid, Petition for Approval of a Geothermal District Energy Demonstration Program, D.P.U. 21-24

Dear Secretary Marini:

On behalf of Boston Gas Company d/b/a National Grid enclosed for filing please find the Company's Initial Brief in the above-captioned proceeding.

Please contact me with any questions. Thank you for your attention to this matter.

Yours truly,

Bess B. Gorman

Enclosures
cc: Kevin Crane, Esq., Hearing Officer, Department of Public Utilities
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COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

BOSTON GAS COMPANY d/b/a NATIONAL GRID	)	D.P.U. 21-24

INITIAL BRIEF OF BOSTON GAS COMPANY d/b/a NATIONAL GRID

Submitted by:

Bess B. Gorman, Esq.
Andrea G. Keeffe, Esq.

Dated: August 25, 2021

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INITIAL BRIEF OF BOSTON GAS COMPANY D/B/A NATIONAL GRID

I. INTRODUCTION

On February 18, 2021, Boston Gas Company d/b/a National Grid ("National Grid" or the "Company") filed a petition with the Massachusetts Department of Public Utilities (the "Department") seeking approval of a Geothermal District Energy Demonstration Program ("Geothermal Program") and revised Local Distribution Adjustment Clause ("LDAC") Tariffs of Boston Gas Company and the former Colonial Gas Company, M.D.P.U. No. 3.13.[1] The Company's filing followed an Interlocutory Order issued by the Department on December 11, 2020, in D.P.U. 20-120 ("Interlocutory Order"), the Company's base distribution rate case, in which National Grid included a Geothermal District Energy Demonstration Program for approval.[2] The Interlocutory Order found that the proposed geothermal demonstration program the Company had put forth would be more appropriately refiled for evaluation in a separate docket, precipitating the Company's filing in this proceeding.[3] As demonstrated below, the Department should approve

[1] Effective March 15, 2020, Colonial Gas Company was merged with Boston Gas Company, with Boston Gas Company as the surviving legal entity, as approved in Boston Gas Company and Colonial Gas Company d/b/a National Grid, D.P.U. 19-69 (2019). However, both companies maintain separate tariffs for ratemaking purposes.
[2] See Boston Gas Company d/b/a National Grid, D.P.U. 20-120, Interlocutory Order on Proposed Demonstration Programs (Dec. 11, 2020).
[3] Id. at 9.

the Company's Geothermal Program proposal and accompanying revised LDAC Tariffs, M.D.P.U. No. 3.13.

The Company's Geothermal Program is designed to: (i) reduce emissions resulting from customer energy use; (ii) promote non-pipe alternatives; (iii) encourage the development of sustainable heating options; and (iv) develop new technologies that advance the low carbon heating solutions needed for the future. The Geothermal Program will target unique geothermal shared loop scenarios particularly aimed at investigating the ability to eliminate the need for leak-prone pipe ("LPP") replacements and alleviate gas infrastructure investments in constrained areas among a mix of customer types, while also providing learnings on customer willingness to convert to a geothermal system and obstacles to conversion for low-income ("LI") customers and environmental justice ("EJ") communities. Considering the Commonwealth's commitment to net-zero carbon emissions by 2050 and the corresponding need to reduce greenhouse gas ("GHG") emissions, particularly among the heating sector, National Grid's Geothermal Program is positioned to enable additional key learnings that will benefit customers and help gas local distribution companies ("LDCs") to further contribute to reductions in emissions. Additionally, learnings from the Company's Geothermal Program will help to further inform the potential ability of the LDCs to provide similar geothermal offerings at scale in the future to aid in the Commonwealth's net zero goals, as the Department investigates in D.P.U. 20-80 the role of LDCs in the Commonwealth's achievement of its target 2050 climate goals.[4]

[4] Vote And Order Opening Investigation, D.P.U. 20-80 (Oct. 29, 2020).

II. PROCEDURAL BACKGROUND

On February 18, 2021, the Company petitioned the Department for approval of the Geothermal Program, at an estimated cost of $15.6 million, and the accompanying revised LDAC Tariffs, M.D.P.U. No. 3.13. The Department docketed the matter as D.P.U. 21-24. The Department conducted one public hearing via Zoom Conference on May 12, 2021, to obtain public comment on the Company's proposals.

On February 24, 2021, the Attorney General ("AGO") filed a notice of intervention under M.G.L. c. 12, §§10 and 11E. In addition, the Department granted petitions to intervene by: the Massachusetts Department of Energy Resources ("DOER"); PowerOptions, Inc. ("PowerOptions"); and Home Energy Efficiency Team, Inc. ("HEET").

In support of its filing, the Company sponsored the testimony of four witnesses: Owen Brady-Traczyk, Manager of the Future of Heat team in the customer organization for National Grid USA Service Company, Inc. ("NGSC"), and Lee Gresham, Lead Analyst for the Gas Utility of the Future team for NGSC, who presented the details, design, customer fees, and costs of the Company's Geothermal Program; and Stephanie A. Briggs, Director of New England Revenue Requirements Department of NGSC, and Tomi A. Uyehara, Senior Analyst in the New England Gas Pricing group of the Strategy and Regulation Department of NGSC, who presented the proposed revisions to the Company's LDAC Tariffs along with illustrative revenue requirements calculations, factor calculations, and bill impacts of the Geothermal Program.

On June 23, 2021, HEET submitted direct pre-filed testimony sponsored by two witnesses: Stephen H. Bryant, who previously held roles in the natural gas industry including President of Bay State Gas Company d/b/a Columbia Gas of Massachusetts from 2003-2019 and presented testimony on the value of the Company's proposal, and Donald Cary Smith, a founding partner and President/CEO of Sound Geothermal Corporation and founding member of the Grey Edge

Group, who presented testimony on the importance of expediting approval and installation of geothermal district energy system demonstration projects.

The evidentiary record includes the Company's responses to 98 information requests propounded by the Department, the AGO, and DOER, and 11 HEET responses to information requests from the Department and the AGO. The Company is submitting this Initial Brief in accordance with the schedule determined by the Hearing Officer.

III. STANDARD OF REVIEW

The Department considers the following factors in evaluating a proposed demonstration project: (1) the consistency of the proposed demonstration program with applicable laws, policies, and precedent; (2) the reasonableness of the size, scope, and scale of the proposed projects in relation to the likely benefits to be achieved; (3) the adequacy of the proposed performance metrics and evaluation plans; and (4) bill impacts to customers. NSTAR Gas Company d/b/a Eversource Energy, D.P.U. 19-120, at 121 (Oct. 30, 2020); NSTAR Electric Company and Western Massachusetts Electric Company d/b/a Eversource Energy, D.P.U. 17-05, at 457 (2017).

The Department has long supported the use of pilots and demonstration projects to test new and emerging business models and technology capabilities, and to evaluate performance, costs, and benefits. See, e.g., NSTAR Gas Company, D.P.U. 19-120 at 143 (approving NSTAR Gas Company's ("NSTAR Gas") geothermal network demonstration program targeting primarily new customers with diverse loads in mixed-use, dense urban environments); NSTAR Electric Company d/b/a Eversource Energy, D.P.U. 17-05, at 470 (November 30, 2017) (approving energy storage pilot); NSTAR Gas Company d/b/a Eversource Energy, D.P.U. 16-79 (February 10, 2017) (approving a natural gas customer expansion pilot program); Massachusetts Electric Company and Nantucket Electric Company each d/b/a National Grid, D.P.U. 11-129 (August 3, 2012) (approving

two-year smartgrid pilot program); NSTAR Electric Company, D.P.U. 09-33 (March 15, 2010) (approving a smart grid pilot program).

In the Interlocutory Order, the Department requested that the Company address how its Geothermal Program is not duplicative of the geothermal demonstration program approved by the Department in the base distribution rate case of NSTAR Gas[5] or a geothermal district project to be administered by the AGO/DOER in the Merrimack Valley area. Interlocutory Order, at 9.

For the reasons stated below, the Company's Geothermal Program satisfies the Department's Standard of Review and also is unique and not duplicative of other geothermal demonstration programs including that of NSTAR Gas and that of the AGO/DOER, and, therefore, should be approved by the Department.

IV. ARGUMENT

A. National Grid's Geothermal Energy District Demonstration Program

a. Program Overview

The Company proposed a Geothermal Program directed at: (1) reducing emissions resulting from customer energy use; (2) promoting non-pipe alternatives; (3) encouraging the development of sustainable heating options; and (4) developing new technologies to advance the low carbon heating solutions needed for the future (Exh. FOH-1, at 5). Geothermal systems are more efficient than air-source heat pumps and are the most efficient heating (and cooling systems) available, featuring coefficients of performance ranging from 3.0 to 5.7 (Exh. FOH-1, at 7). The ground loop portion of a geothermal system is both the reason for the increased efficiency because it allows for high efficiency even during extreme ambient temperature periods, and the primary

[5] D.P.U. 19-120, at 138-156.

hurdle to broader adoption, as it is costly (id.). The Company's goal for the Geothermal Program is to support the development and market adoption of sustainable heating solutions for customers, where such solutions have barriers to entry and are unable to achieve required scale without utility intervention (id. at 6; see also DPU-HEET-1-9 (utilities' financing structures, customer base, customer metering and billing frameworks and access to rights-of-way make them well-suited to create networked geothermal for all customers including low income)).

The Company's proposed five-year Geothermal Program will focus exclusively on offering geothermal service to existing gas customers, or potential new customers who have expressed interest in gas service, through geothermal shared-loop systems connecting multiple independent residential and/or commercial customers (Exhs. FOH-1, at 10-11; DPU-1-6; DPU-1-9). The shared loop system connecting multiple customers may serve: (1) exclusively residential customers; (2) exclusively commercial and industrial ("C&I") customers; or (3) a combination of the two. (Exhs. FOH-1, at 13; DPU-1-21; DOER-1-2). The Company will prioritize installations in areas that have diverse heating and cooling load profiles in order to evaluate how to design a shared loop system that operates with maximum efficiency at a minimum capital cost, while also allowing the evaluation of one or more of the following learning objectives:

(1) providing an alternative to LPP replacement by switching gas customers to geothermal energy;

(2) managing of local gas system constraints and peaks in constrained areas;

(3) assessing the thermal performance and economics of shared loops serving a larger number of residential and/or C&I customers with more diverse load profiles than smaller-scale shared loop demonstration projects conducted by the Company's downstate New York gas affiliate; and

(4) having lower operating costs and lower GHG emission solutions for LI and EJ communities (Exhs. FOH-1, at 13-15; DPU 3-18).

The Company intends to pursue projects that evaluate as many of the above four learning objectives as possible, although it may be challenging or impossible to conduct demonstration projects that each evaluate two or more of these objectives (Exh. DPU-3-18). Additionally, the Company will explore how the waste heat of a given customer – such as a data center or a grocery store with refrigeration – could be redistributed to other customers using the geothermal shared loop (Exh. FOH-1, at 13-14). The Company conducted initial outreach and held preliminary discussions with customers who have expressed interest in the Geothermal Program; upon approval by the Department of the Geothermal Program, the Company plans to further research system reinforcement projects and LPP replacement projects, as two of several criteria, to inform customer recruitment for specific projects (Exhs. DPU-3-1; DPU-3-2). For customers to be considered for participation in the Geothermal Program, they must be existing or prospective gas customers, at a minimum agreeable to adopting geothermal heating, and proximately collocated with an adequate number of other customers willing to enroll in the Geothermal Program within a given area (Exh. DPU-3-1). In those cases where the Company seeks to avoid LPP replacement by converting gas customers served by LPP to geothermal service, the Company's existing natural gas customers who elect to participate in the program must agree to disconnect from gas service completely to participate in the program (Exh. DPU-1-2).

The Geothermal Program provides several benefits for participating customers. First, the geothermal shared loop will be installed, owned, operated, and maintained by a utility under a regulated service, meaning that the customer would not be in charge of any of these responsibilities needed to convert to or use a geothermal system (Exh. DPU-2-13). Also, utility ownership of

shared loops removes the need for customers to fund or finance the installation of the ground loop, a significant barrier to adoption since the ground loop, well-field, and related equipment are approximately sixty percent of the total cost of a geothermal system installation (id.). This level of funding goes beyond what customers would be able to access if they pursued conversion to a ground source heat pump ("GSHP") system on their own. Further, because the shared loop assets can be installed in locations that are not part of the property of an individual customer (e.g., on other parcels or in the utility right of way), it may be possible to provide sufficient capacity to meet the needs of a customer, even if that customer's own parcel does not provide sufficient capacity for geo-exchange (Exh. DPU-2-13).

b. Budget and Cost

The Company's budget for the Geothermal Program assumes four separate projects with each project serving over 40 residential and/or commercial customers primarily with diverse loads, unless a single type of customer can provide the necessary learnings for a particular project (Exhs. FOH-5 (Rev.), at 4; DPU-1-4; DPU-1-24). The Company estimated the cost for the Geothermal Program to be approximately $15.6 million over five years, comprised of $6.4 million of capital and $9.2 million of operating expenses, and included costs for the following elements: (1) the geothermal shared loop system equipment and installation (e.g., drilling wells, pipe, shared heat exchangers, pumps, etc.); (2) design and engineering of the geothermal shared loop system; (3) capital overhead; (4) thermal conductivity testing; (5) GSHPs; (6) GSHP water heaters (e.g., desuperheater, hydronic GSHP, etc.); (7) air duct and radiator improvement or replacement; (8) energy efficiency improvements (e.g., weatherization); (9) gas to electric appliance conversions; (10) gas equipment removal and disposal; and (11) installation of supplemental equipment to ensure that the system can operate within design specifications over the course of its useful life

and withstand changes in thermal capacity in the loop due to changing customer profiles (Exhs. FOH-5 (Rev.); DPU-1-25; DPU-1-26; DPU-4-9).

c. Key Learnings

The Geothermal Program is designed to achieve several new learnings including, but not limited to:

- How geothermal can reduce gas demand in constrained areas;
- How conversion to geothermal of existing natural gas customers served by LPP can be an alternative to replacement of the LPP;
- Any obstacles to the use of geothermal in LI and EJ communities;
- The willingness of existing natural gas customers, and those potential customers seeking to convert to natural gas, to adopt geothermal;
- Heating and cooling GHG emissions reductions that can be achieved from geothermal systems;
- The capacity benefit of load diversification in geothermal shared loop systems;
- The need for auxiliary heating; and
- Geothermal shared loop operation and maintenance costs

(Exhs. FOH-1, at 11-12; DPU-2-8; DPU-3-4).

d. Participant Fees and Customer Charges

Residential and C&I geothermal customers would incur a monthly Customer Charge of $4.00 and residential low-income geothermal customers would incur a monthly Customer Charge of $3.00 (Exh. FOH-1, at 24). In addition, to offset approximately five percent of the cost of the Geothermal Program to be recovered from all gas customers, for the first 24 months, residential low-income geothermal customers would be billed a monthly Participant Fee of $112.50 per GSHP, residential customers would be billed a monthly Participant Fee of $150 per GSHP, and C&I customers would be billed a monthly Participant Fee of $225 per GSHP (id. at 25). The

Company proposed a Participant Fee in order to evaluate customers' willingness to pay for the geothermal system (Exh. DPU-3-7). Learnings and data from the Geothermal Program will inform future fees, rates, and other customer billing arrangements for geothermal service (id.). The Company also may recommend charges by customer class for Geothermal Program participants to pay a portion of the remaining costs of their system after the Geothermal Program has concluded (Exh. FOH-1, at 28). Prior to enrollment, the Company will explain to potential participants all the costs they may be assessed by customer class for their continued use of their geothermal system, and the Company also may cap future charges to the amount of the Participant Fees approved by the Department for this program (Exhs. FOH-1, at 28-29; DPU-4-4). The Company is open to alternate approaches to Participant Fees charged to customers that lower monthly costs across customer classes, as explained further in Section IV.D.c.iii (Exhs. DPU 2-11; DPU-2-12; DPU 2-16).

e. Reporting and Cost Recovery

The Company will report on the progress and results of the Geothermal Program, including customer and stakeholder feedback, in its annual filing to be submitted to the Department on or before July 1 of each year (Exh. FOH-1, at 35). The Company is proposing to recover the costs of the program only after the Company has incurred the costs through the Geothermal District Energy Demonstration Program Factors ("GDEDPFs") with the LDAC (Exh. RRPP-1, at 5). Actual Geothermal District Energy Demonstration Program ("GDEDP") costs would consist of both capital investment (plant recorded as in-service) and operating expenses comprised of operation and maintenance and administrative and general expenses (id.). The Company would submit a filing by July 1 following the calendar year and would propose GDEDPFs based on the sum of (1) the revenue requirement from the prior calendar year capital investment and operating expense and (2) the revenue requirement for the current calendar year for the prior year's plant

recorded as in-service, which would only be applicable for the year after the in-service year, along with the calculations of the applicable revenue requirements, GDEDPFs, and bill impacts (id.). Any amount approved for recovery through the GDEDPFs would be reconciled against revenue billed through the GDEDPFs, and any balance would accrue interest at the prime rate (id.). The Company would credit any over-recovered amounts, with interest, back to its customers; and equally, the Company would recover any under-recovered amount, with interest, from its customers (id. at 6). The Company presented illustrative revenue requirements in Exhibit RRPP-3 which reflected the annual revenue requirements associated with the Company's proposed Geothermal Program Budget in Exhibit FOH-5 (Exhs. RRPP-1 at 7; RRPP-3).

B. National Grid's Geothermal Program Meets the Standard of Review

a. Consistency with applicable laws, policies, and precedent

On January 21, 2020, in his State of the State address, Governor Baker announced the Commonwealth's commitment to achieving economy-wide "net-zero" emissions by 2050. On April 22, 2020, the Baker-Polito Administration issued its letter of determination formalizing Massachusetts' commitment to net zero carbon emissions by 2050. The determination letter sets the legal limit under the Global Warming Solutions Act as a level of statewide GHG emissions that is equal in quantity to the amount of carbon dioxide or its equivalent that is removed from the atmosphere and stored annually by, or attributable to, the Commonwealth; provided, however, that the level of emissions will not be greater than a level that is 85 percent below the 1990 level.[6] The Commonwealth's Clean Energy and Climate Plan identifies reduced energy consumption, particularly within the Commonwealth's heating sector, as necessary to comply with the state's

[6] Determination of Statewide Emission Limits for 2050, at 1.

GHG limits.[7] Although the Commonwealth has already taken aggressive steps to reduce GHG emissions, the state must explore additional actions to comply with the GHG emissions limits.

One of the learning objectives of the Geothermal Program is an analysis of the average GHG emissions from participating customers' geothermal systems compared to their historical average monthly GHG emissions from heating, cooling, and water heating (Exh. DPU 3-4 (Att.)). Geothermal networks advanced by the Company's Geothermal Program have the potential to be a critical resource to understand and meaningfully reduce GHG emissions in the Commonwealth attributable to the heating sector and natural gas usage.

Furthermore, the Department opened a proceeding to investigate the role of LDCs as the Commonwealth achieves its 2050 climate goals. D.P.U. 20-80, at 1. The Department will explore strategies to enable the Commonwealth to move into its net zero GHG emissions energy future while simultaneously safeguarding customer interests; ensuring safe, reliable, and cost-effective natural gas service; and potentially recasting the role of the LDCs in the Commonwealth. Id. Learnings from the Company's Geothermal Program will help to further inform the potential ability of geothermal systems to aid in the Commonwealth's net zero goals and the ability of the LDCs to provide similar offerings at scale in the future, as the Department investigates the LDCs' role in D.P.U. 20-80. See D.P.U. 19-120, at 155 (data and insight from Eversource's geothermal demonstration project will inform D.P.U 20-80). Therefore, the Department should find that the Company's Geothermal Program is consistent with the Commonwealth's applicable laws, policies, and precedents.

[7] Massachusetts Clean Energy and Climate Plan for 2020, 2015 Update, Executive Office of Energy and Environmental Affairs at 16 (December 31, 2015).

b. Reasonableness of Size, Scale, and Scope of Geothermal Program and Adequacy of Proposed Performance Metrics and Evaluation Plans

National Grid's Geothermal Program is appropriately sized, scoped, and scaled in relation to the program's likely benefits and designed to investigate key learnings in new areas for geothermal system development. National Grid will prioritize projects that allow the evaluation of at least one or more of the following potential learning objectives and benefits of geothermal shared loops:

(1) alternative to LPP replacement by switching gas customers to geothermal energy;

(2) managing local gas system constraints and peaks;

(3) assessing the thermal performance and economics of shared loops serving a larger number of residential and/or C&I customers with more diverse load profiles than smaller-scale shared loop demonstration projects conducted by the Company's downstate New York gas affiliate, KEDLI; and

(4) lower operating costs and lower GHG emission solution for LI and EJ communities

(Exhs. FOH-1, at 14-15; DPU-1-4).

To further these learning objectives, the Company has provided 41 metrics, listed in Appendix A, that it expects to evaluate through collection of data from customers participating in the Geothermal Program (Exhs. DPU-3-4; DPU-3-4 (Att.)). The Company will endeavor to find projects that further as many of the learning objectives as possible in each individual project in order to address all the above four objectives across the Geothermal Program (Exh. DPU-3-18). The Company estimates that it will need approximately four projects to address the program's learning objectives (Exhs. FOH-5 (Rev.) at 4; DPU-1-24). Though the budget assumed four demonstration projects, the Company will increase or decrease the final number of projects based on the combinations of learning objectives available with the interested and participating

customers and locations (Exhs. DPU-1-24; DPU-2-9). While geothermal technology is not new, the Company designed the program to achieve new learnings and analyze aspects of geothermal installations that will contribute to the Commonwealth's knowledge base regarding how an LDC may operate geothermal systems for specific purposes. See D.P.U. 19-120, at 141.

In the Company's annual filing to be submitted to the Department on or before July 1 of each year, the Company will report on the progress and results of the Geothermal Program, including customer and stakeholder feedback (Exh. FOH-1, at 35). To evaluate and measure the results of the program, the Company will hire an Evaluation, Measurement, and Verification ("EM&V") firm to develop a plan in collaboration with the Company and to conduct the necessary evaluations, which will address the program's learning objectives, measure technical performance of the GSHPs and shared loops, and assess customer benefits and comfort provided by the shared loops (Exh. FOH-1, at 35).

In the absence of detailed cost-effectiveness screenings, the Department requires demonstration proposals to include detailed program descriptions and appropriate analyses to support the potential of the demonstration proposals to deliver net benefits in the future. D.P.U. 17-05, at 460. The Company has provided detailed program descriptions and demonstrated that the Geothermal Program has the potential to provide approximately 41 metrics for analysis while generating benefits and learnings in the following four areas: (1) data and insight into the viability and scalability of geothermal distribution networks for use as alternatives to LPP or in reducing gas demand in constrained areas; (2) data and insight on the reductions to greenhouse gas emissions; (3) testing the affordability of geothermal networks for LI customers or EJ communities; and (4) testing the willingness of current or prospective new customers to convert to geothermal heating and cooling (Exh. DPU-3-4).

The Company provided a sufficiently detailed description of its Geothermal Program, including cost estimates, learning objectives and metrics, evaluation, and analysis, that support the potential of this program to deliver net benefits in the future. The Company provided this detail in its initial testimony, in response to discovery, and has summarized these details in this brief (see, e.g., Exhs. FOH-1; DPU-2-8; DPU-3-4). Therefore, for the reasons set forth above, the Company's Geothermal Program is appropriately sized, scoped, and scaled in relation to its likely benefits and provides adequate performance metrics and evaluation plans.

c. Estimated Cost of Geothermal Program and Bill Impacts

The estimated cost of the Company's Geothermal Program is $15.6 million over the five-year term, comprised of $6.4 million of capital and $9.2 million of operating expenses (Exhs. FOH-1, at 29; FOH-5 (Rev.) at 1). The Company estimated the budget for the Geothermal Program using data and conservative estimates from the Company's New York affiliate geothermal demonstration program in Long Island, New York (Exhs. FOH-1, at 30; DPU 1-21). The budget assumes that participating customers will pay $0.6 million in Participant Fees and Customer Charges (Exhs. FOH-1, at 29; FOH-5 (Rev.) at 1). While specific projects have not yet been selected, the Company is confident that it can execute one or more shared loop projects that would satisfy the Geothermal Program's learnings within this budget (Exh. FOH-1, at 29). The Company presented illustrative revenue requirements in Exhibit RRPP-3 which reflected the annual revenue requirements associated with the Company's proposed Geothermal Program budget in Exhibit FOH-5 (Exhs. RRPP-1 at 7; RRPP-3). The Company prepared illustrative bill impacts for gas customers resulting from the illustrative revenue requirements for the Geothermal Program, keeping all rates constant except for the illustrative GDEDPFs (Exhs. RRPP-1, at 16; RRPP-4). The resulting analysis demonstrates that a typical residential heating customer would

experience minimal annual bill impacts ranging from a 0.1% decrease to a 0.1% increase, year over year, during the five-year program term (Exh. RRPP-1, at 16-17).

Customers participating in the Geothermal Program would contribute in two ways to the program costs. First, the Company proposes that participating customers pay a monthly Geothermal Customer Charge per geothermal service location to establish and maintain the customer's relationship with the Company for the duration of their geothermal service (Exh. FOH-1, at 24). The Geothermal Customer Charge was derived based on a portion of the customer-related costs underpinning the Company's existing gas customer charges, which cover the fixed costs of serving customers, such as billing, customer service, and other functions (id.). For Customer Charges, residential customers would pay $4.00 per month per geothermal service location; residential low-income customers would pay $3.00 per month per geothermal service location; and C&I customers would pay $4.00 per month per geothermal service location (id.).

Second, the Company proposes to assess participating customers monthly Geothermal Participant Fees to offset the total cost of the program once their geothermal service is fully operational (id. at 25). With these fees, which will be required for the first two years of geothermal service, participating customers initially will contribute approximately five percent of the total costs of the geothermal system and any investments required to support the adoption of geothermal based on the residential cost estimates (id.). As stated above, the Company proposed residential customers be billed $150.00 per month per GSHP; residential low-income customers be billed $112.50 per month per GSHP; and C&I customers be billed $225.00 per month per GSHP in Participant Fees (id.). As proposed, participating customers who receive gas and/or electric service on a low-income rate would be charged the residential low-income Geothermal Customer Charge

and a Participant Fee, both of which would be 25% lower than the residential Participant Fee and Customer Charge (id. at 26).

The Participant Fee is designed to be fixed and simple in structure while also enabling some recovery from participating customers of the value they are receiving from participation in the Geothermal Program. The value received by participating customers includes the cost of the GSHP (averaging $3,867/ton per customer) and may also include energy efficiency improvements (averaging $5,000 per customer), and gas-to-electric appliance conversions (Exhs. DPU 1-26; DPU 1-27). Overall, a typical participating customer could receive up to $70,701 in materials and labor that are covered by the Geothermal Program (Exh. FOH-5 (Rev.), at 3). Considering the amount of value participating customers will receive in the form of material and labor, the Company's proposed Participant Fee is reasonable, presents great value to participating customers, and meets the Standard of Review.

C. National Grid's Geothermal Program provides unique learnings and should run concurrently with the NSTAR Gas demonstration program and the geothermal project to be administered by the AGO/DOER.

National Grid demonstrated that its Geothermal Program provides unique learnings and should run concurrently to the geothermal programs instituted by NSTAR Gas and the AGO/DOER. In the Interlocutory Order, the Department directed the Company to refile its demonstration programs outside of the rate case, and, for the geothermal program specifically, directed that the Company address: (1) how the Company's proposed demonstration program is not duplicative of either/both of the NSTAR Gas approved demonstration program and the geothermal district project to be administered by the AGO/DOER; and (2) why the Department should allow the Company's proposed demonstration program to run concurrently with these two programs. Interlocutory Order at 9.

The Company demonstrated its Geothermal Program is distinguishable from the programs run by NSTAR Gas and AGO/DOER. The NSTAR Gas geothermal program will focus on implementing geothermal systems in dense, urban environments that serve mixed-use customers who currently utilize delivered fuels, and, at the direction of the Department, may also include existing natural gas customers and a low-income multi-family building[8] (Exh. FOH-1, at 38; see also NSTAR Gas Company Geothermal Demonstration Project Implementation Plan Q2 2021, D.P.U. 21-53, at 3-4 (May 4, 2021)). The NSTAR Gas geothermal demonstration program will not target aging, leak-prone pipe and differs in several other aspects with the Company's Geothermal Program (D.P.U. 19-120, at 147). Specifically, the Company's Geothermal Program differs from that of NSTAR Gas as it will: (a) primarily target existing natural gas customers of the Company while also offering to potential new customers of the Company as an alternative to natural gas service; and (b) will test several aspects of the benefits of geothermal networks that are not part of the NSTAR Gas program, including:

(1) The ability of geothermal networks to reduce natural gas demand in constrained areas;

(2) The ability of a geothermal district energy (or shared loop) system to eliminate the need to replace existing LPP infrastructure;

(3) The benefit of identifying and interconnecting customers with different load profiles which would include all C&I customers or all residential customers and not be limited to mixed-use;

(4) The ability to enroll geothermal customers over a broader range of areas with varying population densities and not just densely populated areas; and

[8] Compare D.P.U. 19-120, at 141 ("The novel aspect of NSTAR Gas's proposal is the use of geothermal distribution networks traveling through public ways that will, therefore, service customers over a wider geographical footprint compared with geothermal systems confined to a single property").

(5) The enablement of geothermal for LI customers and EJ communities where property may not be owner-occupied and a split incentive barrier could exist (id.).

To the Company's knowledge, the program to be designed and conducted by the AGO/DOER is still being scoped and defined (Exh. FOH-1, at 39). The Company showed that its proposed Geothermal Program is unique from that of NSTAR Gas and the AGO/DOER and can run concurrently to provide learnings on these differentiating aspects for the benefit of National Grid's customers as well as all LDCs in the Commonwealth.

D. Response to Intervenors

On August 11, 2021, in accordance with the established briefing schedule, the AGO, DOER, and HEET submitted initial briefs. HEET and DOER supported approval of the Company's geothermal program, with specific recommendations, and the AGO did not oppose the program and offered recommended conditions for approval (AGO In. Br. at 5-7; DOER In. Br. at 4-5; HEET In. Br. at 13, 24-28). The Company appreciates the support and thoughtful recommendations of the intervenors on the structure of the Geothermal Program.

a. AGO

The AGO states that the Department may grant conditional approval of the Geothermal Program (AGO In. Br. at 4). One such condition for approval is that the Company closely adhere the design of the projects within the Geothermal Program to the Company's four scenarios: (1) select mixed-use customers with diverse heating and cooling requirements for its shared loop geothermal district heating system; (2) gather data and information to determine whether and how a geothermal district heat offering can serve as a non-pipe alternative to costly gas system reinforcement project; (3) collect data and information on whether and how the geothermal investment could provide savings and benefits to all gas customers by serving as a non-pipe

alternative and eliminating or forestalling replacement of LPP; and (4) examine how a shared geothermal district heating arrangement might aid decarbonization of buildings serving low-income customers or members of an environmental justice community (id. at 5-6). The Company will ensure that any project undertaken through the Geothermal Program furthers the evaluation, data collection, and/or knowledge around at least one of these four scenarios (Exhs. FOH-1, at 14-15; DPU-3-18). However, it may be unlikely or even impossible to find one project that furthers two or more scenarios simultaneously (Exh. DPU-3-18).

b. DOER

DOER supports approval of the Company's Geothermal Program and specifically highlights that the evaluation of using geothermal shared loops in lieu of LPP and expensive capital upgrades to the distribution system are consistent with the Commonwealth's clean energy policies (DOER In. Br. at 4-5). DOER also seeks collaboration with the Company, Eversource, and the AGO/DOER during the implementation phases of their respective geothermal programs (id. at 6). DOER suggests that it would be most efficient to have a monthly, or at least quarterly, collaboration with the Company to provide real-time information and feedback on the projects (id. at 6-7). The Company welcomes this collaboration and is willing to have periodic collaborations with DOER, AGO, Eversource, and any other interested stakeholders to share knowledge, best practices, and learnings throughout the course of the programs. To ensure there are resources dedicated to the Geothermal Program implementation and collaboration efforts, the ability to hire two full-time equivalents to execute the program will be a key element (Exh. FOH-1, at 30).

c. HEET

HEET supports the Department's approval of the Company's Geothermal Program as consistent with the standard of review (HEET In. Br. at 9). In addition, HEET makes 12

recommendations for the Company's program in the areas of: (a) prioritizing customer engagement through enhanced outreach and reduction of barriers to participation; (b) strengthening data collection and transparency to support collaborative learnings and enhance the value of knowledge created by the geothermal projects; and (c) incorporating additional design components and evaluation metrics to further enhance system performance and project learnings (id. at 24-28).

National Grid addresses each recommendation below, recategorizing them as: (i) customer outreach and third-party engagement; (ii) technical recommendations; or (iii) participant fees, program costs, and cost recovery. Notwithstanding the following, the Company wants to continue an open dialogue with HEET throughout the Geothermal Program implementation process, explore all ideas, and implement HEET's recommendations that meet the Geothermal Program's learning objectives, are suitable for specific project sites, meet the needs of participating customers, stay within the program's budget, structure, and timeline, and other factors critical to the Geothermal Program's success.

i. Customer Outreach and Third-Party Engagement

Regarding customer engagement, National Grid is committed to robust outreach efforts within neighborhoods and areas that would be suitable for a shared loop system and furthers at least one of the four scenarios that the Company intends to explore through the Geothermal Program (Exhs. FOH-1, at 14-15; DPU-1-7; DPU-2-3; DPU-2-4; DPU-2-5). To clarify, the Company would not conduct outreach across its entire service territory, as that could lead to inefficient use of the program's resources. Instead, the Company would focus outreach efforts in areas or sites that have been pre-identified and customers that have expressed interest in participating, provided that the site will enable learnings for at least one of the four scenarios

(Exhs. DPU-1-7; DPU-2-6). Moreover, National Grid is open to participating in HEET's community charrette process and the charrettes could be used to address HEET's recommendations for seeking public input on metrics, conducting outreach and education with potential demonstration project participants, working with low-income tenants and landlords, and reviewing project designs with a third-party (HEET In. Br. at 25, items (i) and (ii); 26, items (ii) and (ii); 27, item (ii)). While the Company agrees that stakeholder outreach and collaboration are essential to the success of the program, the Company, as the implementor of the Geothermal Program and operator of the gas distribution system, must retain final decision authority over the design and execution of any geothermal project.

Though National Grid is committed to engaging its workforce during the Geothermal Program's implementation, development of a formal training program is premature. HEET recommends that the Company engage its workforce by providing training, during and after the project installation, on how to install, operate, and maintain networked GSHP systems (HEET In. Br. at 28, at item (v)). The Company is committed to ongoing communication and engagement with its labor unions regarding the Geothermal Program, which includes seeking opportunities for represented employees to potentially observe construction and/or maintenance activities for geothermal demonstration projects to increase their knowledge about these technologies, identify transferrable skills for gas system work, and information future geothermal workforce development efforts (Exhs. DPU-1-20; DPU-2-17). However, the Company does not yet have a detailed plan to transition and train its existing workforce to facilitate and support geothermal heating services, or in support of any other clean energy alternatives the Company may consider because the Company needs to conduct the Geothermal Program to generate the learnings and data

necessary to evaluate the long-term feasibility of scaled geothermal utility offerings (Exh. AG-1-3). Thus, it is premature to develop workforce training for geothermal systems.

ii. Technical Recommendations

National Grid appreciates HEET's technical recommendations regarding geothermal project structure and design. However, the Company must retain final decision authority over the design of any geothermal project in collaboration with the geothermal design, engineering, and construction contractor(s) and other firms it may retain to conduct the Geothermal Program. Further, certain aspects of HEET's recommendations may not be applicable depending on the characteristics of the sites chosen and the customers participating. For these reasons, the Company needs to maintain technical flexibility to address the specific nature of the sites chosen and the customer needs. Therefore, the Company will strongly consider the following technical recommendations from HEET, but cannot commit to implementing them in the Geothermal Program at this time:

a) Design the proposed Geothermal Projects as dynamic systems that consider not just aggregated peak load but also the fluctuations and durations of load demand, using stochastic modeling and optimization to determine the necessary infrastructure (HEET In. Br. at 27, item (i), internal quotation omitted);

b) Use of a single backup heater on a shared loop of water, rather than backup heating units for each customer (id. at 27, item (iii));

c) Interconnection with other networked GSHP systems and introduction of additional thermal sources and sinks on an ambient temperature shared loop, and the impacts of such connections on the Geothermal Project's resiliency and National Grid's

ability to shift loads to address intermittency or other constraints on the electric grid (id. at 28, item (iii)); and

d) Consider opportunities to use control software for the proposed Geothermal Projects that integrates data acquisition features that can create a learning profile in order to optimize information collection and the systems' operational efficiencies and costs. The information that would be generated by such learning profiles will be particularly important as networked GSHP systems begin to scale (id. at 26, item (iii)).

In line with HEET's recommendation, the Company intends to have "significant control over building retrofits and heat pump sizing" to ensure each geothermal shared loop is "best designed to meet the varying load requirements of the buildings connected to the system" and requests the Department's authorization to do so through the Geothermal Program (HEET In. Br. at 27, item (i)). The Company also welcomes a third-party design review process to ensure that various perspectives are considered and promising opportunities to meet the program's learning objectives are not overlooked when designing these systems, as long as this review process does not hinder the Company's ability to execute the number of projects necessary to meet the Geothermal Program's learning objectives (id. at 27, item (ii)). As stated for HEET's technical recommendations above, the Company will consider input on geothermal system design from a third-party design review process, but the Company needs to retain final decision authority over all aspects of each demonstration project implemented under the Geothermal Program.

HEET suggests that the Company's evaluation of any geothermal project should identify any significant design features and business models that were not utilized but could have affected performance, efficiency, or cost (HEET In. Br. at 27, item (ii)). Evaluating elements of geothermal

projects not considered, designed, or used could greatly expand the scope of the EM&V and the associated costs for the Geothermal Program. The Company's program is designed to evaluate the use of geothermal shared loop systems in four specific scenarios; quantifying any alternative not taken could lead to many "what if" scenarios and speculation regarding potential alternate outcomes. The Company is willing to explore conducting these analyses but cannot commit to them at this time without a better understanding of the time, costs, data requirements, and other factors necessary to properly execute them through the Geothermal Program.

iii. Participation Fees, Program Costs, and Cost Recovery

The Company has the potential for small alterations to the fee structure of the Geothermal Program (see Exhs. DPU-2-11; DPU-2-12; DPU-2-16). As explained above, National Grid proposed to charge participating customers a Geothermal Participant Fee, which would be billed over a 24-month period (Exh. FOH-1, at 25). Charging a monthly fee will allow the Company to evaluate customers' willingness to pay for the geothermal system and service and is a partial contribution in exchange for the potential total value received for participating (Exhs. DPU-2-16; DPU-3-7). These learnings may inform future fees, rates, and other customer billing arrangements for geothermal service that may or may not be similar to the Participant Fees and Customer Charges proposed for the program (Exhs. DPU-3-7; DPU-3-9). Additionally, the Participant Fees offset the program costs associated with the potential significant value a customer may receive for participating in the Geothermal Program (Exh.[9] OBJ National Grid appreciates HEET's suggestion that the Company be permitted flexibility in distributing the costs of the Geothermal Program to

[9] For example, a residential customer could receive up to approximately $70,701 in value (e.g., a fully-installed ground source heat pump, acess to a geothermal loop and new appliances) by participating and in exchange for paying $4 per month in geothermal customer charges for the duration of the service and $3,600 in participant fees billed monthly for 24 months (Exh. DPU-2-16).

reduce or remove the upfront customer participation costs and monthly fees (HEET In. Br. at 25, item (iii)).

The Company is willing to explore ways to make participant fees more affordable (Exh. DPU-2-3). The Company is open to extending the time period for collecting the Participant Fees for residential, residential LI, and C&I customers for up to five years while keeping the same total participant fees proposed for those customers, as a way of lowering the monthly payment amounts, making the program more affordable, and incentivizing participation (Exhs. DPU-2-12; DPU-2-16). Extending the payment term to 60-months would result in monthly fees of $60.00 for residential customers, $45.00 for residential LI customers, and $90.00 for commercial customers (Exh. DPU-2-16). The Company acknowledged that LI customers may find it financially challenging to enroll in the program and that they may be more willing to do so if there was a lower monthly Participant Fee (see Exhs. DPU-2-3; DPU-2-11). If the total Participant Fee is changed for low-income customers, the Company intends to recover the Geothermal Program costs that would have been offset by these revenues from all customers (Exh. DPU-3-8). However, the Company does not recommend extending the term of the Participant Fee for more than five years for any customer class to avoid any reconciliation issues with respect to tracking, accounting, and the risk of customer turnover (Exhs. DPU-2-11; DPU-2-12).

For cost comparison purposes, the Company intends to use the most recently approved gas system depreciation rates and a 50-year useful life for the geothermal systems, as may be updated based on the Geothermal Program's learnings. HEET states that the Company should compare the costs of the proposed geothermal projects to the cost of new natural gas infrastructure, to account for the fact the geothermal infrastructure has a longer useful lifespan than new natural gas infrastructure, in light of the Commonwealth's aggressive GHG emissions mandates (HEET In.

Br. at 28, item (iv)). The Company intends to use the gas depreciation rates as most recently approved by the Department in its pending base distribution rate case (see Exh. DPU-1-8). For the geothermal systems, the Company proposes to use a 50-year depreciable life based on currently available information (Exhs. FOH-1, at 17, 23, 36; DPU-1-8). The Company will evaluate the useful life of all geothermal shared loop systems installed through this program and if the useful life of geothermal shared loops is determined to be longer (or shorter) than 50 years, the Company will adopt this revised useful life for any future projects (see Exh. DPU-1-8).

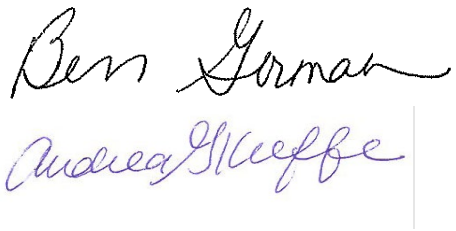
If the Geothermal Program is approved, the annual filing made on July 1 after the program's previous calendar year will include the data necessary for cost recovery purposes (Exh. FOH-1, at 35). HEET requests that the Company make all data from the proposed Geothermal Program, including the cost of capital, transparent and publicly available, to the extent permitted by law (HEET In. Br. at 26, item (iv)). The Company makes reasonable efforts to share as much data publicly as possible; however, by its nature, certain types of information, such as competitively-sourced cost information and customer-specific information, are not disclosed publicly in accordance with the Department's precedent. The Company will make reasonable efforts at anonymizing confidential data to enhance public review and any data not shared will be described and redacted in accordance with the Department's practice.

V. CONCLUSION

For the reasons outlined in this Initial Brief, National Grid has demonstrated that the Company's proposed demonstration program meets the Department's Standard of Review, is not duplicative with other geothermal demonstration programs, and will provide significant benefits to gas customers and the Commonwealth's GHG emissions goals, and, therefore, respectfully requests that the Department approve the Company's Geothermal District Energy Demonstration Program.

Respectfully submitted,

Boston Gas Company
d/b/a National Grid
By its attorneys,



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Date: August 25, 2021

Appendix A – Evaluation Metrics

Preliminary Metric		Collection Approach and Interval
1	Sections of leak prone pipe (LPP) eligible for program participation	One-time analysis of Gas System Enhancement Plans (GSEP) prior to customer recruitment and site selection
2	Gas system constraints eligible for program participation	One-time analysis to prioritize gas network constraints to inform customer recruitment and project site selection efforts
3	Compare the cost of geothermal shared loop infrastructure to repair or replacement of eligible LPP sections	One-time comparison of estimated LPP repair or replacement costs to capital expenses and at least two years of operating costs for geothermal shared loop(s)
4	Gas customer knowledge/awareness of LPP	Surveys and interviews during customer recruitment and site selection
5	Gas customer knowledge/awareness of geothermal	Surveys and interviews during customer recruitment and site selection
6	Gas customer willingness to adopt geothermal	Surveys and interviews during customer recruitment and site selection
7	Gas customer willingness to end their gas service to adopt geothermal	Surveys and interviews during customer recruitment and site selection
8	Low-income customer barriers to program participation	Surveys and interviews during customer recruitment and site selection
9	Environmental Justice community barriers to program participation	Surveys and interviews during customer recruitment and site selection
10	Participant satisfaction	Monthly or quarterly surveys with program participants
11	Shared loop load diversity (coincident max load as a percentage of shared loop thermal capacity)	Analysis of hourly and/or daily load data over a minimum of two heating and cooling seasons per shared loop
12	Peak shared loop heating load	Analysis of hourly and/or daily load data over a minimum of two heating and cooling seasons per shared loop
13	Peak shared loop cooling load	Analysis of hourly and/or daily load data over a minimum of two heating and cooling seasons per shared loop
14	Temperature delivered to participants (weather normalized, per square foot, per BTU delivered)	Analysis of hourly and/or daily GSHP output data over a minimum of two heating and cooling seasons per shared loop
15	Real-world shared loop GSHP performance	- Analysis of hourly and/or daily GSHP output data over a minimum of two heating and cooling seasons per shared loop - May compare AHRI and/or other GSHP performance ratings to actual GSHP performance during the demonstration program

16	Indoor air quality for participants	Analysis of building air quality before and after conversion to geothermal on an interval recommended by the Company's evaluation, measurement, and verification consultant(s)
17	Fully-installed capital cost per ton of shared loop thermal capacity (with and without back-up heating, if applicable)	One-time analysis of invoiced capital costs after each shared loop goes into service
18	Fully-installed cost per ton for ground source heat pumps (GSHP) (with and without back-up heating, if applicable)	One-time analysis of invoiced capital costs after each GSHP goes into service
19	Compare fully-installed cost per ton of geothermal shared loops to GSHP systems for individual customers, with and without back-up heating	One-time analysis of invoiced capital costs after each shared loop goes into service and the average cost of individual GSHP systems in the Massachusetts Clean Energy Center's GSHP project database
20	Share loop operating and maintenance costs	Shared loop operating and maintenance costs including electricity, pump maintenance, etc. calculated annually based on invoiced costs
21	Additional costs to put shared loops into service	One-time analysis of invoiced costs not captured in other metrics for easements, permits, environmental studies, surveys, and other activities required to put each shared loop into service
22	Number of participants requiring energy efficiency improvements	Analysis of project management data after each shared loop system goes into service
23	Energy efficiency improvements implemented	Analysis of project management data after each shared loop system goes into service
24	Average cost of energy efficiency improvements per participant	Analysis of project management data and invoice costs after each shared loop system goes into service
25	Mass Save incentives claimed	Analysis of project management data and Mass Save incentive applications after each shared loop system goes into service
26	Number of participants requiring heating and cooling distribution system upgrades/improvements	Analysis of project management data after each shared loop system goes into service
27	Heating and cooling distribution system upgrades/improvements implemented	Analysis of project management data after each shared loop system goes into service
28	Average cost of heating and cooling distribution system upgrades/improvements	Analysis of project management data and invoiced costs after each shared loop system goes into service
29	Number of participants requiring equipment removal	Analysis of project management data after each shared loop system goes into service
30	Equipment removed	Analysis of project management data after each shared loop system goes into service

31	Average cost of equipment removal	Analysis of project management data and invoiced costs after each shared loop system goes into service
32	Number of participants requiring gas-to-electric appliance conversions	Analysis of project management data after each shared loop system goes into service
33	Gas-to-electric appliance conversions implemented	Analysis of project management data after each shared loop system goes into service
34	Average cost of gas-to-electric appliance conversions	Analysis of project management data and invoiced costs after each shared loop system goes into service
35	Average monthly GSHP electricity consumption	Analysis of monthly GSHP electricity usage over a minimum of two heating and cooling seasons per GSHP
36	Peak heating GSHP electricity consumption	Analysis of monthly GSHP electricity usage over a minimum of two heating and cooling seasons per GSHP
37	Peak cooling GSHP electricity consumption	Analysis of monthly GSHP electricity usage over a minimum of two heating and cooling seasons per GSHP
38	Average monthly GSHP electricity costs for participants	Analysis of participant electric bills and GSHP electricity usage over a minimum of two heating and cooling seasons per GSHP
39	Comparing average monthly GSHP electricity costs to participants historical average monthly heating, cooling, and water heating costs	Analysis of participant electric bills and GSHP electricity usage over a minimum of two heating and cooling seasons per GSHP and historical electric and/or gas bills provided by participants
40	Average monthly greenhouse gas (GHG) emissions from GSHP operation	Analysis of monthly GSHP electricity usage over a minimum of two heating and cooling seasons per GSHP multiplied by a GHG emissions factor per kWh
41	Compare average monthly GHG emissions from GSHP operation to participants historical average monthly GHG emissions from heating, cooling, and water heating	Analysis of monthly GSHP electricity usage over a minimum of two heating and cooling seasons per GSHP multiplied by a GHG emissions factor per kWh and historical electric and/or gas bills and information about past heating, cooling, and water heating energy consumption provided by participants

Source: Exh. DPU 3-4 (Att.)

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Petition of Boston Gas Company d/b/a National Grid for Approval of a Geothermal District Energy Demonstration Program	)	D.P.U. 21-24

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused to be served the foregoing document in the above-referenced docket upon the parties of record in accordance with the requirements of 220 C.M.R. 1.05 (Department's Rules of Practice and Procedure) and the Department's Continuation of Modified Filing Requirements issued on June 15, 2021.

Respectfully submitted,

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