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Admitted in: MA

January 12, 2024

ELECTRONIC SUBMISSION

Robert J. Shea, Presiding Officer
Energy Facilities Siting Board
One South Station
Boston, Massachusetts 02110

Re: Holyoke Gas & Electric Department - EFSB 22-07

Dear Mr. Shea:

Attached please find the Brief of Holyoke Gas & Electric Department for filing in the above-referenced proceeding. Also attached please find the requisite Certificate of Service.

Please let me know if you have any questions with respect to this matter.

Thank you for your consideration.

Very truly yours,

James M. Avery

JMA/cdw
Attachment
cc: Andrew Greene, Director, EFSB (electronic)
Joan Foster Evans, General Counsel, EFSB (electronic)
Wayne Wang, Assistant Director, EFSB (electronic)
Nathaniel Strosberg, Energy Facilities Siting Analyst, EFSB (electronic)
Yonathan Mengesha, Docket Clerk, EFSB (electronic)
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Brian Roy, Gas Superintendent, HG&E (electronic)
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COMMONWEALTH OF MASSACHUSETTS

ENERGY FACILITIES SITING BOARD

Petition of Holyoke Gas & Electric Department for Approval to Construct and Operate a New Natural Gas Storage Facility Pursuant to G.L. c. 164, § 69J	)	EFSB 22-07

BRIEF

OF

HOLYOKE GAS & ELECTRIC DEPARTMENT

Submitted by its attorneys:

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Dated: January 12, 2024

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The Holyoke Gas & Electric Department ("HG&E" or the "Company"),[1] a municipal light department established for and providing electric and natural gas distribution services primarily in the City of Holyoke ("Holyoke"), respectfully requests that the Massachusetts Energy Facilities Siting Board ("Siting Board") approve, pursuant to G.L. c. 164, § 69J, its petition for authority to construct and operate a new liquefied natural gas ("LNG") storage tank (the "Project") at its existing LNG storage and vaporization facility off Mueller Road in western Holyoke (the "West Holyoke Facility").

I. INTRODUCTION

A. Summary of the Company and the Project.

HG&E is a municipal utility established pursuant to G.L. c. 164 in 1902. HG&E provides both electric and gas distribution service to its customers. HG&E leads the Commonwealth in the provision of innovative and environmentally-sensitive service to its customers (Exh. HGE-1, App. G, at 2-3). HG&E has made a substantial commitment to delivering clean energy and has been working for years to expand its reliance on carbon-free sources of generation, delivering a portfolio of electricity that was 95% carbon-free in 2021 (id.). HG&E's achievements have secured substantial recognition. For example, the Smart Electric Power Alliance placed HG&E on its 2021 "Utility Transformation Leaderboard" and ranked HG&E third nationally among utilities in energy storage capacity per capita (Exh. HGE-1, App. G, at 4; Exh. EFSB-PA-15, Att. (1), at 14). In addition, an innovative solar and storage project of HG&E was awarded the outstanding innovative technology award from the Environmental Business Council of New England (id.).

HG&E's innovative spirit with respect to its resource mix is reflected in its ownership of hydro-electric generation facilities in Holyoke, its maintenance of an entitlement to hydroelectric generation from the New York Power Authority, its contract for wind power from a regional on-shore project and its ongoing operation and planned expansion of solar generation and battery

[1] A summary of the primary abbreviations and defined terms used within this Brief is provided as Appendix A.

storage resources (Exh. HGE-1, App. G, at 2; Exh. EFSB-PA-8; EFSB-PA-15, Att. (1), at 14-16; Tr. 281-282). HG&E maintains comprehensive, customized energy efficiency programs working collegially with other municipal light plants (e.g., the "NextZero" brand), while also monitoring the market carefully to ensure comparability to programs such as MassSave. RR-EFSB-22; Exh. EFSB-PA-15, Att. (1), at 14; Tr. 47-48). HG&E regularly rolls out innovative pilot programs, such as a program offering select customers a portfolio of 100% renewable energy. HG&E established a multi-disciplinary "Green Team" that meets regularly and engages in numerous ways with its customers on innovative programs, including efforts to advance electrification (id.). As a joint utility, HG&E is committed to maintaining its leadership role in meeting Holyoke's and the Commonwealth's climate objectives.[2]

Importantly, HG&E is aggressively planning for and actively advancing the transition to greater "electrification" (id., App. G, at 8; Exh. EFSB-PA-15; Exh. EFSB-PA-17). HG&E is "strategically planning upgrades to the electric system to accommodate increasing loads while balancing financial impacts to customers" (id.). A number of necessary upgrades to its electric distribution system were summarized in Exh. HGE-1, App. H, along with an earlier estimate of the cost of anticipated distribution system upgrades. Given the substantial cost of these upgrades, HG&E appropriately plans to complete such work over time (Exh. HGE-1, at 4-7; Exh. EFSB-PA-16). HG&E has also been actively analyzing its service territory to facilitate the "roll out" of air source heat pumps ("ASHP") (Exh. EFSB-PA-17) and working aggressively to market to and educate consumers on this topic and to address a range of challenges to wider acceptance (Exh. EFSB-PA-16 (since 2019, HG&E has provided rebates to 163 customers installing ASHPs)). HG&E retained expert consultants to evaluate the merits of ASHPs and geothermal energy and has actively promoted a number of ASHP applications (Exh. EFSB-PA-17; RR-EFSB-1).

[2] HG&E has effectively managed its environmental goals while appreciating the fact that a substantial portion of its customers live line in Environmental Justice ("EJ") communities which benefit from HG&E's lower costs (RR-EFSB-24; RR-EFSB-24(S1)). The Department of Public Utilities has recognized the importance of addressing cost and the relative energy burden, including during an energy transformation. See Vote and Order Opening Inquiry, D.P.U. 24-15 (January 4, 2024).

The Company provides natural gas distribution service to approximately 11,500 customers primarily within Holyoke but also serves some customers located in the Town of Southampton ("Southampton") (id.). The Company maintains firm, contracted pipeline delivery capacity from the Tennessee Gas Pipeline Company LLC's ("Tennessee") Northampton lateral pipeline ("Northampton Lateral") of 11,800 Dekatherms per day ("Dth/d") (id).[3] To the extent HG&E's peak day demand exceeds 11,800 Dekatherms ("Dth"), then the Company vaporizes LNG from its West Holyoke Facility to meet the remainder of customer demand. The West Holyoke Facility is the site of both HG&E's interconnection with Tennessee and its existing LNG storage and vaporization facility. At present, the West Holyoke Facility, which was constructed in 1971, contains four 55,000 gallon LNG tanks (Exh. HGE-1, at 1-1). There were earlier plans for the Company to construct a fifth tank of similar capacity (id.), which tank was not completed due to financial constraints at that time. Current aggregate on-site LNG storage capacity is approximately 16,000 Dth (id. at 3-4).

The Company demonstrated that on peak or near-peak days, its system demand is approximately 20,000 Dth/d (Exh. EFSB-N-3). HG&E explained that it is not able to maintain reliable service for even two consecutive peak or near-peak days without securing multiple, additional deliveries of LNG.[4] Holyoke remains concerned with its ability to maintain reliable service with its relatively higher dependance upon LNG and recent market changes in the region requiring that many of its needed deliveries of LNG now being sourced from increasingly remote supply sources. LNG truck deliveries may be precluded or delayed during periods of severe weather conditions. HG&E was able to maintain reliable service during one recent, extended cold

[3] The Northampton Lateral was constructed in the early 1950s (Exh. HGE-1, at 4-4).

[4] HG&E has been working actively to address this reliability concern for several years. Two early responses were to impose a "moratorium" on the addition of new customer load and to develop a coordinated response with Columbia Gas of Massachusetts (now Eversource; "Columbia") reflected in, thereafter, a 2017 Memorandum of Understanding ("MOU"; Tr. 192-194). The MOU would have resulted in a "swap" of HG&E's entitlement off the Northampton Lateral in exchange for a new delivery entitlement off the Tennessee mainline. Columbia later terminated this MOU (Exh. HGE-1, at 3-6 – 3-7). As a result, HG&E reconsidered it resource plan, developed the Project and initiated a process for review at the Siting Board. The moratorium on the general addition of natural gas load has remained in place and is not expected to be terminated even if the Project is completed (id.; see also Tr. 202, 218 (The Project does not address the moratorium; the complementary work will enable limited, strategic concerns only.)).

snap only by securing approval from Tennessee to exceed HG&E's daily pipeline supply contractual delivery limit, an option that has not been available after that time (most likely due to increasing capacity constraints on the interstate pipeline system) (Exh. HGE-1, at 3-8, Table 3.4; Tr. 198, 199). Thus, HG&E determined that additional on-site LNG storage was needed to maintain reliable service to its existing customers.

The proposed Project would increase the on-site LNG storage capacity at the West Holyoke Facility to a level above that needed to meet demand for two consecutive colder days enabling the Company to continue to provide reliable service during peak demand conditions to its existing gas distribution customers (Exh. HGE-1, at 4-1 – 4-2; RR-EFSB-3; Tr. 218).[5] This greater level of storage capacity is in line with Siting Board precedent applicable to another, nearby utility's LNG storage facility, which utility is also served from the Northampton Lateral. The Berkshire Gas Company, EFSB 99-2 at 74 (1999) (Berkshire Gas's approved plan was to add additional LNG storage capacity at its Whately LNG facility periodically so as never to fall below LNG storage capacity sufficient to meet service demands for at least three consecutive colder days).

The proposed new, 70,000 gallon tank will be integrated with the existing tanks so that truck-unloading and vaporization operations would continue in a manner generally consistent with HG&E's longstanding practice. The Project will increase the West Holyoke Facility's on-site LNG storage to approximately 21,000 Dth (Exh. HGE-1, at 1-1). The Company explained that in assessing the need for the Project, it also evaluated the West Holyoke Facility for any other needed improvements recognizing that the number and type of expected contractors to be on-site during tank construction would provide significant opportunities for cost savings or impact reductions if additional work was determined to be necessary or appropriate. Accordingly, the

[5] The Company explained that the Project was not designed and would not be pursued to secure even strategic, additional customers (RR-EFSB-3). HG&E only recognized that it should employ all available resources to meet climate goals and strategic customer additions can reduce local emissions by millions of tons (RR-EFSB-14).

Company plans to complete certain "non-jurisdictional" improvements at the West Holyoke Facility, including the enhancement of existing retention berms and the replacement of an existing LNG vaporizer with two, new and redundant vaporizers.

The Project is expected to cost approximately $4,400,000 (Exh. HGE-1, at 2-5).[6] Figure 1, below, presents an aerial view of the West Holyoke Facility and its surrounding area. Figure 2 depicts the existing equipment at the West Holyoke Facility; the proposed fifth LNG tank will be located to the right of and generally in line with the four existing LNG tanks depicted in Figure 2.[7]

Figure 1 - Aerial View of Project Site

[6] The planned complementary work, required regardless of the addition of the Project, is anticipated to cost approximately $3,400,000, resulting in total expected construction cost at the West Holyoke Facility of approximately $7,800,000 (Exh. HGE-1, at 2-5).

[7] HG&E explained that the proposed tank will appear substantially similar to the existing tanks, being only six inches longer and 18 inches wider (Exh. EFSB-G-7).

Figure 2 - Photograph of Existing Equipment at the Project Site

B. Procedural History.

1. Petition to the Siting Board.

On December 7, 2022, HG&E filed a petition ("Petition") with the Siting Board seeking approval for the construction and operation of the Project, which Petition was docketed as EFSB 22-07. The Siting Board issued a Notice of Adjudication and Notice of Public Comment Hearing ("Notice") and Plain Language Letter on March 9, 2023.

2. Public Notice.

For the Public Comment Hearing ("Public Comment Hearing"), the Siting Board directed the Company to publish the Notice: (a) once a week for two consecutive weeks in the *Daily Hampshire Gazette* and the *Springfield Republican*; (b) to post the Notice on the website of: (i) Holyoke; (ii) Southampton; and (iii) the City of Westfield and to arrange that the Notice remain posted until the close of the written comment period; (c) have the Notice and Petition available for inspection at: (i) City Clerk, City of Holyoke (per the Clerk, the Notice was posted to the City's bulletin board at City Hall); (ii) Town Clerk, Town of Southampton; and (iii) City Clerk, City of Westfield ("Westfield") and to arrange that such copies remain available to the public until the Siting Board issues a final decision in this proceeding; and (d) have the Notice and Petition

available for inspection the: (i) Holyoke Public Library; (ii) Edwards Public Library; and (iii) The Westfield Athenaeum and, similarly, to arrange that such copies remain available to the public until the Siting Board issues a final decision. As directed by the Siting Board, the Company mailed the Notice and Plain Language Letter to all owners of property within one-half mile of the property line of the Project Site. While not technically required,[8] the Company, however, elected to provide translation of an important alert on the envelope of all required mailings of the Notice to abutters as reflected in the Company's return of service. The Siting Board also required a copy of the Notice to be sent to the following City of Holyoke officials and departments: (i) the Mayor; (ii) the Planning Board; (iii) the City Council; (iv) the Zoning Board of Appeals; (v) the Department of Public Works; (vi) the Conservation Commission; and (vii) the City Solicitor.

The Siting Board conducted a virtual Public Comment Hearing on March 29, 2023 to receive public comments on the Petition. The Public Comment Hearing was available to participants in "real time" translation to Spanish. At the Public Comment Hearing a number of Holyoke or state officials and representatives and one neighbor to the West Holyoke Facility offered comments. The public comments were unanimous in their support for the Project and their appreciation of the Company's efforts to review the Project within the community and, specifically, with neighbors to the Project and to seek and secure appropriate comments.[9]

No parties requested or were granted intervenor or limited party status in this proceeding.

3. Adjudicatory Hearings.

The Siting Board staff conducted written pre-hearing discovery of the Company. Specifically, on October 23, 2023, the Siting Board issued 110 information requests and the Company provided responses to those requests on November 9, 2023.

[8] The Project did not trigger enhanced public participation or enhanced impacts analysis by the Siting Board under the 2017 EJ Policy, as revised on June 24, 2021 because the Project is not located within one mile of low income and minority environmental justice populations and the Project did not exceed the Environmental Notification Form ("ENF") thresholds for air, solid and hazardous waste, or wastewater and sewage sludge treatment and disposal (Exh. HGE-1, at 7-4).

[9] Such promise reflects the effective outreach conducted on the Project. For example, a senior management official visited every residence in the Muller Road neighborhood (Exh. EFSB-PA-2; Exh. HGE-1, App. A, at 55-61).

The Company presented five witnesses; each of the Company's witnesses submitted pre-filed direct examination in advance of evidentiary hearing and appeared for examination during the hearings. The Company's witnesses were: James M. Lavelle, Manager of Holyoke Gas & Electric Department; Brian Roy, Gas Superintendent at Holyoke Gas & Electric Department; Kate Sullivan Craven, Director of Marketing & Communications at Holyoke Gas & Electric Department; John (Jay) A. Gamble, Jr., PE, PMP, Owner and Principal Consultant of Energy Technical Services PLLC; and John Zimmer, Principal, Epsilon Associates, Inc.

The Siting Board conducted remote evidentiary hearings on November 27 and 28, 2023. The Company provided responses to 24 record requests raised during the evidentiary hearings on December 11, 2023.

On December 22, 2023, the Presiding Officer requested that HG&E to address the implications of the Order of the Department in D.P.U. 20-80-B (issued December 6, 2023) in its brief in this Proceeding. HG&E addresses this request in Section VI, infra.

C. Jurisdiction and Scope of Review Under G.L. c. 164, § 69J.

G.L. c. 164, § 69J provides that the Siting Board should approve a petition to construct if the Siting Board determines that the petition meets certain requirements, including that the plans for the construction of the applicant's facilities are consistent with the requirements stated in G.L. c. 164, § 69H to provide a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost and are consistent with current health, environmental protection, and resource use and development policies of the Commonwealth.[10] See Town of Sudbury v. EFSB, 487 Mass. 737, 746-747 (2021).[11]

[10] .G.L. c. 164, § 69J also requires an applicant to demonstrate that its proposed facilities are necessary. See Section II, below.

[11] Pursuant to G.L. c. 164, § 69J, a project applicant must obtain Siting Board approval for the construction of proposed energy facilities before a construction permit may be issued by another state agency. The Company explained that no other permits of applications are needed in connection with the Project (Exh. HGE-1, at 1-3; Exh. EFSB-G-3; Exh. EFSB-PA-7 (Project will only involve minor disturbance to approximately 0.159 areas)).

G.L. c. 164, § 69G defines a "facility" to include "a unit, including associated buildings and structures, designed for or capable of the manufacture or storage of gas, except such units below a minimum threshold size as established by regulation." See also, 980 CMR 1.01. On June 20, 2011, the Siting Board promulgated regulations exempting certain types of natural gas facilities from Siting Board review. The regulations exempt: (1) a unit with a total gas storage capacity of less than 25,000 gallons and a manufacturing capability of less than 2,000 million British thermal units ("MMBtu") per day; (2) a unit whose primary purpose is research, development, or demonstration of technology and whose sale of gas, if any, is incidental to that primary purpose; and (3) a landfill or sewage treatment plant. 980 CMR 1.01(4); Final Decision Adoption of Final Regulation at 980 CMR § 1.01(4), EFSB 09-RM-1 (June 20, 2011). Because the Project will have a total storage capacity in excess of the 25,000 gallon regulatory threshold, the proposed Project is a "facility" with respect to Section 69J and, therefore, the Project is subject to Siting Board review under Section 69J.

The Siting Board requires that an applicant demonstrate that its proposal meets the following requirements: (1) that additional energy resources are needed (see Section II, below); (2) that, on balance, the proposed project is superior to alternative approaches in terms of reliability, cost, and environmental impact, and in its ability to address the identified need (see Section III, below); (3) that the applicant has considered a reasonable range of practical facility siting alternatives and that the proposed facilities are sited in locations that minimize costs and environmental impacts while ensuring a reliable energy supply (see Section IV, below); (4) that environmental impacts of the project are minimized and the project achieves an appropriate balance among conflicting environmental concerns as well as among environmental impacts, cost, and reliability (see Section IV, below); and (5) that plans for construction of the proposed facilities are consistent with the current health, environmental protection, and resource use and development policies of the Commonwealth (see Section VI, below). The Siting Board has

specific regulations relative to siting LNG facilities, the satisfaction of which are explained in Section V, below.

The Company respectfully submits that the Siting Board should find that the Project satisfies all of the applicable standards and, therefore, should also approve the construction and operation of the Project.

II. NEED FOR THE PROJECT`

A. Standard of Review.

In accordance with G.L. c. 164, § 69J, the Siting Board is charged with the responsibility for implementing energy policies in its statute to provide a necessary energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost. In carrying out this statutory mandate with respect to proposals to construct natural gas facilities, the Siting Board evaluates whether there is a need for additional natural gas facilities in the Commonwealth to meet reliability, economic efficiency, or environmental objectives. See Northeast Energy Center LLC, EFSB 18-04/D.P.U. 18-96; at 16 (2021) ("Northeast Energy Center"); Colonial Gas Company d/b/a National Grid, EFSB 18-01/D.P.U. 18-30, at 78 (2019) ("Lowell-Tewksbury"); Colonial Gas Company d/b/a National Grid, EFSB 16-01, at 5-6 (2016) ("Colonial Gas (2016)"); Colonial Gas Company d/b/a KeySpan Energy Delivery New England, EFSB 05-2 (2006) ("Colonial Gas 2006"); The Berkshire Gas Company, EFSB 05-1, at 3-4 (2006) ("Berkshire Gas (2006)"). See also, The Berkshire Gas Company, EFSB 99-2/D.T.E. 99-17 (1999) ("Whately LNG").

In evaluating the need for new energy facilities to meet reliability objectives, the Siting Board may evaluate the ability of the existing system to accommodate changes in aggregate demand or supply, to serve major new loads, or to maintain reliable service. The Siting Board previously has approved proposals to construct gas facilities to accommodate load growth within a utility's service territory and to transport natural gas to generating facilities. See Lowell-Tewksbury, at 7; Colonial Gas (2006), at 13-15; Berkshire Gas (2006), at 9. In such cases, the proponent must demonstrate that additional energy resources are necessary to meet reliability

objectives by establishing that its existing system is inadequate to serve the anticipated load with acceptable reliability. See Northeast Energy Center, at 17; Lowell-Tewksbury, at 7; Berkshire Gas (2006), at 3-4.

B. Need for the Proposed Facility.

HG&E demonstrated that the Facility is needed to ensure the continuing provision of reliable and safe natural gas distribution service to its existing customers. As noted, HG&E operates and maintains a natural gas distribution system to serve approximately 11,500 customers within Holyoke and in a portion of Southampton (Exh. HGE-1 at 3-1).

HG&E explained that it maintains contracts that provide for the firm delivery of 11,800 Dth/d of gas from Tennessee. HG&E takes delivery from the Northampton Lateral which is a "dead-end" interstate pipeline that originates at the Tennessee mainline and proceeds northerly to Northampton, Massachusetts (Exh. HGE-1, at 3-1). The Northampton Lateral is fully-subscribed for delivery of natural gas to four different utilities and no incremental pipeline delivery capacity is available to HG&E absent an expensive, highly impactful and not anticipated expansion (id at 1-1; Tr. 199-200; Exh. EFSB-N-14).

HG&E explained that, in order to serve its customers on colder days, it relies substantially upon LNG that is stored, vaporized and injected into HG&E's distribution system at the West Holyoke Facility. LNG is delivered to the West Holyoke Facility by truck. Historically, HG&E had secured deliveries from an import terminal in Everett, Massachusetts, which receives global deliveries of LNG. More recently, due to longer term concerns with the reliability of supply at the Everett terminal and the highly volatile price of that supply, HG&E has contracted for deliveries from more distant terminals in Montreal, Canada and Pennsylvania.[12] In any event, the Everett

[12] HG&E noted that it was aware of a new LNG source coming on-line in Charlton, Massachusetts, namely the liquefication storage and truck-loading facility developed by Northeast Energy Center. See Northeast Energy Center. HG&E has been in discussions with NEC executives and expects that this new source will enhance reliability. The availability of this resource will enable some deliveries of LNG from a close source but does not alter the need for the Project as the bulk of HG&E's LNG deliveries will continue from more remote sources (Exh. HGE-1, at 3-6; Tr. 57).

terminal is expected to be closed in the near team (Exh. EFSB-N-7) which will increase competition and risk relative to LNG procurement and delivery (Tr. 57).

HG&E relies heavily upon the use of the West Holyoke Facility to meet its peak demand for its existing customers, serving more than forty percent (40%) of its peak day demand with LNG.[13] HG&E demonstrated that its existing, on-site LNG storage capacity is inadequate, with the Company not able to maintain reliable service for even two consecutive peak or near-peak days without securing multiple truck deliveries of LNG (id. at 1-1). HG&E is concerned that it may not be able to secure needed deliveries during periods of cold weather, including if adverse weather conditions preclude or delay truck deliveries (e.g., Exh. EFSB-N-21, qualified driver availability has been a growing concern). HG&E also noted its concerns with the admittedly less likely event of a pipeline service outage or curtailment affecting its ability to secure deliveries of pipeline natural gas from the Northampton Lateral (Exh. EFSB-N-5 (HG&E encourages the Siting Board to take notice that interstate natural gas infrastructure has increasingly been subject to outside risk, including increasing instances of vandalism or "hacking," for example the May 2021 events on the Colonial Pipeline)).

1. Overview of Resource Planning.

(a) Forecast.

HG&E explained that conducts are annual resource plan analysis (Exh. HGE-1, at 3-1). As part of this process, HG&E considers observed and forecasted conditions. Certain elements of HG&E's demand forecast are substantially influenced by the fact that HG&E instituted a "moratorium" on the addition of incremental customers or load due to the reliability concerns being considered in this proceeding (Exh. HGE-1, at 1-1). Specifically, HG&E's forecast now maintains current, relative customer counts (as no new customers can be added)[14] and adjusts customer

[13] HG&E explained that its reliance upon LNG is relatively high for the region, with 28% of the [region's] peak day natural gas demand being served by LNG (Exh. HGE-1, at 3-5; Exh. EFSB-N-16).

[14] This approach to customer level is consistent with Department precedent on forecasts for service area experiencing a moratorium. See RR-EFSB-12 (a similar approach for Berkshire Gas' Eastern Division, located off the Northampton Lateral to the north of HG&E, was approved. See also, The Berkshire Gas Company, D.P.U. 18-07, at 12 (2019).

usage factors down to reflect the contribution of ongoing energy efficiency programs (RR-EFSB-12; Tr. 43-44). HG&E then applies these factors to appropriate weather data. Two principal tests for the reliability of service are the "peak day" and the "cold snap" (i.e., a series of peak or near peak days). For its peak day, HG&E applies a 68 HDD day (or a day with a temperature of -3°F) (Exh. HGE-1, at 3-1). This weather standard was actually experienced recently in early 2016 (id. at 3-2). Importantly, HG&E has experienced comparable or even higher send-out on days with milder temperatures (see, e.g., Exh. HGE-1, at 3-2; Exh. EFSB-N-17 (HG&E's record send-out occurred on a day with only 63.0 HDD)).[15] HG&E projected a peak day send-out for the 2022/2023 winter season of 20,015 Dth, with slight annual decreases for the five-year forecast period.[16]

HG&E also evaluates its ability to meet system demand over an "extended period of design or near design" weather conditions (Exh. HGE-1, at 3-3). HG&E employs a planning cold snap based upon recently-experienced conditions from early 2018 over a ten-day period. HG&E believes that this recent experience remains a valid and appropriate test for reviewing its resources for reliability of service (Exh. EFSB-N-13). Notably, HG&E routinely faces cold weather of reasonable duration, experiencing an average of six events per year with three-day aggregate HDDs of at least 150, with a high of 21 such events occurring just nine years ago (Exh. EFSB-N-19).

The Siting Board should find that HG&E's demonstrated peak day and cold snap forecast are appropriate and reliable for planning purposes.

(b) Comparison of Existing Resources to Planning Standards.

An important element of HG&E's need review was the comparison of system demand on a peak day or during a cold snap to its existing resources. First, HG&E evaluated its ability to meet demand on a forecasted peak day. Peak day send-out was projected to be 20,015 Dth. As noted,

[15] HG&E has not experienced an "extreme" peak since its record day for send-out on January 21, 2019. HG&E explained that this result is likely a consequence of the continued implementation of HG&E's aggressive efficiency program, the COVID pandemic and milder weather over recent years (Exh. HGE-1, at 3-2). HG&E believes that its weather standard remains appropriate.

[16] The peak day send-out for that day was 18,348 Dth, on a day with only 66.6 HDD.

HG&E maintains pipeline capacity rights to 11,800 Dth/day (Exh. HGE-1, at 3-1). Thus, HG&E must provide the remaining, needed supply from the West Holyoke Facility, or approximately 8,222 Dth. HG&E is therefore required to deliver 41% of its supply from the West Holyoke Facility on such a peak day, a level far above the regional average (Exh. EFSB-N-16). Moreover, this peak day requirement would exhaust more than half of the West Holyoke Facility's LNG capacity, assuming that all facility tanks were full prior the start of such day.

Second, HG&E recognized that the cold snap was a more telling or important test of system reliability. HG&E presented and carefully reviewed system performance over a 10-day cold snap that actually occurred in 2018, including a presentation on the West Holyoke Facility's LNG dispatch and inventory levels. HG&E explained that this experience remained relevant due to the limited changes in its forecasted peak or near-peak day send-out (Exh. HGE-1, at 3-8). HG&E was able to maintain reliable service to its existing customers only by extraordinary measures. For example, HG&E needed to arrange and take deliveries of an unprecedented 51 truckloads of LNG, including one day with 10 deliveries (id.; see also, Tr. 54). In addition, over each day of the ten-day cold snap, HG&E needed to and was able to take "emergency" deliveries in excess of its "contractual" maximum daily delivery off of the Northampton Lateral. Absent this "overtake" capability, HG&E would have needed to interrupt or curtail service to all or a substantial number of customers as early as the fifth day of the actually experienced weather event (see Exh HGE-1, at 3-8, Table 3.4 (on-site LNG inventory at the end of Day #5 of the referenced cold snap was only 1,097 Dth while cumulative "overtakes" between Day #1 through Day #5 were 3,000 Dth in aggregate, with truck deliveries were at high levels)). HG&E explained the ability to secure additional "emergency" deliveries has not been available subsequent to that time and cannot be relied upon the future (Exh. HGE-1, at 3-9; Tr. 197-199). HG&E explained that any "overtake" would only be available at the discretion of Tennessee and subsequent market developments have made capacity "less" available, particularly on the Northampton Lateral. Indeed, the ability to secure additional pipeline gas during the subject cold snap was described as an "anomaly" (id.).

HG&E concluded that it was now overly dependent on securing LNG deliveries in periods of multiple consecutive cold weather days. LNG trucking can be challenging or precluded in the winter due to snow and ice storms, lack of driver or equipment availability, greater distances to supply sources or other factors (Exh. HGE-1, at 3-5; Exh. EFSB-N-12; Exh. EFSB-N-19). In addition, LNG deliveries have become even more challenging with the pending closure of the Everett LNG terminal. HG&E has secured most of its recent LNG deliveries from Canada and Pennsylvania, sources not only father away but also subject to adverse weather risk or other challenges (e.g., border crossings) (Exh. HGE-1, at 3-6). HG&E properly concluded that its gas supply resources and, in particular, its on-site LNG storage were inadequate during a cold snap.

HG&E also evaluated its ability to maintain service in the event of the loss of availability of its single largest supply resource, namely, deliveries off the older, Northampton Lateral. HG&E realized that Tennessee has enjoyed a strong record of reliable and high quality service (Exh. HGE-1, at 3-9; Exh. EFSB-N-2). However, if HG&E experienced an unusual service interruption, HG&E would hope to be able to maintain service to existing customers for at least twenty-four hours to enable remedial action by Tennessee. Current storage levels would not provide this capacity. While not of the same urgency, recent experience with less availability of capacity in the region and national instances of vandalism, HG&E wished to review resources that not only would assist in meeting demand during particular peak weather conditions, but could also provide service over a reasonable duration if pipeline service was interrupted (Exh. EFSB-N-3). Again, such need has historically not materialized; however, no new interstate pipelines are likely to be added to the region and existing pipelines are operating generally at or near full capacity and such operation “stress” could result in a greater likelihood of a contingency event (Tr. 197-198).

Finally, HG&E considered whether its energy efficiency programs might address the identified “need” concerns. HG&E recognized that limited benefits has been secured in terms of peak demand periods (Exh. HGE-1, at 3-10). Therefore, HG&E properly concluded that it was

extremely unlikely that the identified reliability concerns could be addressed with additional energy efficiency resources. See Section III.B.7, infra.

(c) Conclusion.

HG&E's updated resource analysis confirmed the continuing need for enhanced reliability of supply during cold or moderately protracted periods of cold days. HG&E believes that it is overly dependent upon the ability to secure LNG truck deliveries to maintain reliable service, often in the face of adverse weather conditions, and at a time when LNG deliveries are increasingly procured from more remote sources in a market subject to intensifying competition.

III. ALTERNATIVE APPROACHES TO MEETING THE IDENTIFIED NEED

A. Standard of Review.

General Laws, c. 164, § 69J requires a project proponent to present alternatives to the proposed facility, which may include: (1) other methods of transmitting or storing energy; (2) other sources of electrical power or natural gas; and (3) a reduction of requirements through load management. Northeast Energy Center, at 40; Lowell-Tewksbury, at 19; Colonial Gas (2016), at 11; see also, NSTAR Electric Company d/b/a Eversource Energy, EFSB 19-03/D.P.U. 19-15 (2021) ("Andrew-Dewar") at 24; Sudbury-Hudson, at 27; NSTAR Electric Company d/b/a Eversource Energy, EFSB 16-02/D.P.U. 16-77, at 13-14 (2018) ("Needham-West Roxbury").[17] In implementing its statutory mandate, the Siting Board requires a petitioner to show that, on balance, its proposed project is superior to alternative approaches in terms of cost, environmental impact, and ability to meet the identified need. Northeast Energy Center, at 40; Lowell-Tewksbury, at 19; Colonial Gas (2016), at 11; Berkshire Gas (2006), at 12-13; see also, Andrew-Dewar, at 24. In addition, the Siting Board requires a petitioner to consider reliability of supply as part of its showing that the proposed project is superior to alternative project approaches. Northeast Energy

[17] G.L. c. 164, § 69J also requires an applicant to present "other site locations." This requirement is discussed in Section IV, below.

Center, at 40; Lowell-Tewksbury, at 19; Colonial Gas (2016), at 11; Berkshire Gas (2006), at 12-13; see also, Andrew-Dewar, at 24.

B. Identification of Alternative Approaches for Analysis.

After the termination of the MOU with Columbia which would have provided HG&E with a new, mainline interconnection project alternative and HG&E's confirmation of its continuing resource need, HG&E initially updated its analysis of project alternatives. HG&E's combined expertise in both the electricity and natural gas industry facilitated this process. First, HG&E sought to identify a highly diverse and extremely comprehensive range of potential resource alternatives, including accelerated "electrification." The alternatives identified by HG&E at this stage included: (i) a no-build alternative; (ii) the Project; (iii) the development of a second or alternative LNG facility; (iv) pipeline alternatives; (v) enhancing an interconnection with neighboring gas utilities; (vi) a new propane-air or LNG facility; (vii) expanded energy efficiency or demand response initiatives; and (viii) accelerated electrification efforts beyond HG&E's established and comprehensive strategic plan (Exh. HGE-1, at 4-1). Next, HG&E evaluated these alternatives in terms of the ability to address the identified reliability need. This review demonstrated that the only practicable alternatives that addressed the identified need were the Project, alternative LNG facilities and the expansion of the Northampton Lateral.

1. No-Build Alternative.

In a no-build alternative, no improvements would be made to HG&E's existing West Holyoke Facility or its natural gas distribution system. In this case, the identified reliability need described in Section II would not be met. HG&E is obligated to ensure that it is able to continue to provide reliable gas supply to its customers to meet firm customer demand under reasonably foreseeable conditions in an economic and safe manner while mitigating potential environmental impacts (id.; see also, § VI, infra). With the no-build alternative, HG&E's approximately 11,500 customers would be dependent upon the increasingly challenging ability to replenish the West Holyoke Facility's LNG storage supply during peak demand periods (Exh. HGE-1, at 3-7). A short

period of extreme cold weather, even less than two consecutive days, would jeopardize service reliability to existing customers. Beyond the cold snap consideration in Section II, supra, HG&E explained that it had experienced short, extended periods of cold weather with relative frequency (e.g., cumulative three-day totals of at least 150 heating degree days) of at least three consecutive days an average of six times per year over the last ten years, with 21 such events occurring in the 2014/2015 winter (Exh. EFSB-N-19). HG&E properly recognized that because the no-build alternative would not address the reliability need, it should not be considered further.

2. The Project.

The proposed Project was designed to ensure HG&E's continued provision of reliable natural gas distribution service. The Project expands the existing on-site LNG storage capacity of the West Holyoke Facility "enabling HG&E to dispatch" LNG to meet demand needs over more extended periods of design weather while managing storage refill operations in a reasonable and prudent manner.[18] Given the ability to enhance the ability to maintain reliable service, HG&E properly determined that this alternative should be studied further.

3. Alternative LNG Facility Configuration.

HG&E determined that a second, parallel or independent LNG storage facility could potentially be constructed that would meet the identified need for incremental LNG storage capacity. Two conceptual options were identified: (i) an additional, smaller LNG facility similar to the West Holyoke Facility and that would be operated in parallel; and (ii) a larger LNG facility with sufficient storage that would facilitate the decommissioning of the West Holyoke Facility. HG&E determined that either type of facility would be able to provide the required reliability benefits (Exh. HGE-1, at 4-3).

[18] An added benefit of complementary work at the West Holyoke Facility is that it could enable HG&E to provide a modest level incremental natural gas service and, as a result, reduce emissions by strategically targeting customers likely to employ fuel oil or other fossil fuels while also providing least cost services as HG&E continues its transition to "net zero" (Exh. HGE-1, at 3-9; RR-EFSB-14). The Project also addresses any risk associated with stranded costs.

To evaluate the merits of this alternative, HG&E performed a preliminary site identification process. The site identification process sought to identify parcels at least 10 acres in size so as not to exclude the analysis of potentially suitable alternatives. HG&E recognized that a more preferable LNG alternative would be a single, larger facility rather than two separate smaller facilities. Thus, a portion of the screening analysis focused upon sites of at least 25 acres that are potentially available for acquisition where a larger LNG storage facility could be sited and constructed (id. at 4-2).

The design of any new LNG storage facility would necessarily reflect the characteristics and limitations of the particular site. HG&E identified two potential alternative sites in Holyoke that were of sufficient size for the design and construction of a new LNG storage facility as well as a third theoretically potential site in Southampton. These sites are located off Whiting Farms Road (approximately 10.98 acres), off Apremont Highway (approximately 25 acres) in Holyoke and off County Road just north of the Holyoke line in Southampton (approximately 50 acres).[19]

The smaller Whiting Farms Road Site has less room for development due to its location closer to the population center of Holyoke and the limited sizes of the parcels making up that site (Exh. HGE-1, at 4-2). That site would only support the construction of a single 70,000-gallon tank together with all other required operational elements including necessary truck unloading, vaporization, odorant and metering equipment (id. at 4-3). Beyond the capital cost of this alternative, HG&E would incur increased operations and maintenance costs (and operational complexity) by needing to operate two distinct LNG facilities simultaneously to meet and balance its natural gas demand and maintain appropriate distribution system pressure (id.).

The Apremont Highway Site and the Southampton Site were both large enough to support a larger, field-erected tank with an assumed capacity of approximately 1,700,000 gallons, together

[19] Two of these sites (both of which are in Holyoke) were necessarily reconsidered during HG&E's site selection analyses (see Section IV, infra). The West Holyoke Facility is the only available location where needed construction for any incremental LNG capacity would be limited to the addition of a single tank (Exh. HGE-1, at 4-2).

with related equipment needed to operate such a facility (id.). Each such facility would be designed to be filled prior to the winter and not require refilling during winter months except during more extreme weather. The West Holyoke Facility would be retired if the Apremont Highway Site or Southampton Site options were constructed and operational.

HG&E properly determined that these options could help to ensure confirmed reliable service and, therefore, should be analyzed further. HG&E also explained that the employment of "temporary" LNG storage was not likely to be an available option and, even if it was, such an approach would not be costly, would be inefficient to operate and would compromise safety (RR-EFSB-6; Tr. 111-113). HG&E would need to maintain "full-time" access to at least seven LNG transport vehicles, would need to "stage" such trucks at the West Holyoke Facility, requiring additional oversight by HG&E personal, and the benefits of well-designed safety measures would not be available (id.).

4. Pipeline Alternatives.

HG&E also evaluated alternative pipeline supply solutions. First, HG&E determined that the addition of a large-scale natural gas transmission pipeline delivering incremental capacity to the region was highly unlikely and simply not an available option. HG&E then necessarily considered potential modifications to existing Tennessee delivery facilities that might provide additional delivery capacity. HG&E is supplied pipeline gas at its sole gate station that interconnects with the Northampton Lateral. The Northampton Lateral was installed in the 1950s to provide cleaner natural gas to the region as utility systems transitioned away from dirtier manufactured gas. This lateral is currently operating at capacity and cannot provide additional supply without expansion of the Tennessee system (Exh. HGE-1, at 4-4). The installation of a second pipeline parallel and adjacent to the existing Northampton Lateral (i.e., "looping") would be needed to facilitate an increase of capacity to HG&E's gate station was identified and evaluated to address the identified reliability need.

HG&E determined (in consultation with Tennessee) that Tennessee would need to install an approximately 1.7-mile "loop" of large-diameter (minimum 12-inch), coated-steel, high-pressure pipe infrastructure within or directly adjacent to the existing Tennessee lateral right-of-way ("ROW") (id.). This project alternative would substantially impact the neighboring communities of Southwick and Westfield, Massachusetts during construction and would involve acquisition of new easements from both current and newly affected landowners as well as substantial environmental permitting challenges. The pipeline alternative also involves substantial cost. The cost of this alternative was at least $70 million (Exh. HGE-1, at 4-4). This alternative would also be expected to increase the prospect of substantial stranded costs over time (id.).

While the pipeline alternative could meet the identified reliability need and facilitate the addition of strategic, incremental service, HG&E recognized that the alternative would have a substantially higher cost and involve substantial environmental and community impacts that are otherwise avoided by the Project. HG&E nevertheless elected to continue the evaluation of this alternative to ensure that it did not overlook any viable project alternative.

5. Interconnection Alternatives.

As described, HG&E had previously elected to seek to address its identified reliability need by executing an MOU with Columbia. While this original transaction structure is no longer available, HG&E again considered the use of existing natural gas distribution system interconnects with other natural gas utilities in the region for system reliability. An interconnect is a point where two natural gas utilities integrate piping systems for the purpose of natural gas supply through negotiated means (Exh. HGE-1, at 4-5). HG&E has and maintains interconnections with two neighboring utility natural gas distribution systems, namely Westfield Gas & Electric ("WGE") and Eversource (which acquired Columbia and now operates the portion of Columbia's distribution system in the Springfield area). Utility interconnects are typically designed to permit natural gas flow into each utility's respective system during emergency events or planned maintenance activities (id.).

While providing a valuable resource to maintain system operations during emergencies or maintenance, HG&E's existing interconnects are simply not sufficient to provide peak demand relief. A principal problem is that these existing interconnections are located at system points where HG&E's gas distribution system is operating at a higher pressure than at the respective, neighboring system utility's at the interconnect point. As a result of this pressure differential, HG&E would be required to lower system operating pressure to receive natural gas supply from these interconnections. The need to lower system pressure when operating under peak demand would, in turn, frustrate this alternative's ability to meet the need as lower pressures impact the operation of system pressure regulating stations and would further limit the gas supply to HG&E's customers (id. at 4-5).

In sum, any incremental benefits that might be secured by the interconnection would be more than offset by the consequences of the necessary operational pressure reduction. As such, HG&E properly concluded that an interconnection with WGE or Eversource would not effectively address the identified reliability need due to physical and design limitations of existing and available system interconnections.

6. Compressed Natural Gas or Propane-Air Alternatives.

HG&E also identified and considered the use of compressed natural gas ("CNG") or propane-air facilities for injection into HG&E's gas distribution system. HG&E explained that CNG is natural gas that is stored under extremely high-pressure that can, in some cases, be used as a supplemental fuel for a utility system. CNG must then be processed through regulation equipment to lower its pressure before it can be safely injected into HG&E's distribution system. In addition, CNG is transported pursuant to tractor trailers and each trailer can hold only approximately 400 Dth (id. at 4-5). Any CNG being dispatched for reliability purposes would need to be processed and dispatched from the delivery trailer for the duration of the entire dispatch operation. To provide an equivalent storage capacity as the Project, at least 10 trailers would be required to be on-site during a peak demand period. This could be theoretically accomplished by the "staging" of trailers

or some theoretical continuous delivery to replace depleted units. HG&E properly determined that the limited storage availability of the trailers and the reliance of continuous trucking during the winter season would simply not meet the identified reliability need (and would be inferior in terms of safety). For many of these same reasons, CNG is rarely employed by distribution utilities in the northeastern United States for utility "peak shaving" operations (Exh. EFSB-PA-15).

HG&E also evaluated the alternative of developing a new propane-air facility to meet the identified reliability need. Similar to an LNG facility, liquid propane may be vaporized and mixed with air to be injected into a gas distribution system. HG&E explained that it had previously operated a propane-air system for peaking purposes at the West Holyoke Facility, but that system was decommissioned in 2005 due to increasing natural gas "interchangeability" concerns. The use of propane-air involves a number of operational challenges, in part due to propane's higher heat content as compared to natural gas. Safe propane-air operations require the employment of an air stabilization system to lower the heat content of the propane vapor to match or complement the energy value of natural gas to avoid safety concerns for downstream users (id. at 4-6). In addition, the propane-air injection point must be located on the gas distribution system where there is a high demand (flow) and the propane-air mixture can only supplement the existing gas supply up to 50% of the volume in the gas distribution system in order to avoid the risk of damage to customer's equipment or appliances. Theoretically, propane-air operations could be restored at the West Holyoke Facility, but such an alternative would not provide sufficient reliability, would be substantially more expensive and would raise safety and operational complexity concerns. For these same reasons, propane-air equipment has largely been decommissioned across Massachusetts and New England (Exh. EFSB-PA-15).

Because neither CNG nor propane-air would address the identified reliability need, HG&E properly excluded these alternatives from further consideration.

7. Energy Efficiency, Demand Response and Accelerated Electrification.

HG&E also evaluated the merits of further expanding its comprehensive and thoughtful energy efficiency programs as a potential alternative to the Project and concluded that expanded energy efficiency measures could not meet the reliability need. The beneficial load reductions from HG&E's comprehensive energy efficiency programs are already fully reflected in HG&E's determination of its load requirements, effectively reducing such send-out requirements for planning purposes. Beyond this, HG&E, in its resource planning process, identifies and evaluates energy efficiency options on an equal basis with available supply or facility options and incorporates the results of its successful energy efficiency programs into its forecast.

HG&E's energy efficiency programs have been in place for decades and enable HG&E to provide valuable tools, incentives and information to help customers understand and reduce their energy usage. Reductions in customer energy usage have been and will continue to be gained from raising awareness through home energy audits, the replacement of aging systems with the installation of higher efficiency equipment, building efficiency improvements (weatherization) and the use of programmable thermostats to optimize energy use practices. HG&E estimates that it has achieved actual energy savings of over 4,000 Dth in the last three years. To translate this annual level of savings to a theoretical peak day's non-pipeline requirements, the amount of achieved demand reduction over the length of these efforts equates to only approximately 43 Dth or less than one percent of HG&E's peak day LNG send-out. To date, the actual overall impact during a peak natural gas event has been minimal with annual peak day savings only averaging 10 to 15 Dth in 2023. HG&E continues to experience customer resistance to these changes, which it works to address while being mindful of and respecting customer elections.

As a result, HG&E properly concluded that energy efficiency measures alone cannot deliver the level of demand reduction necessary to meet the identified need. While energy efficiency remains an important and attractive option to reduce annual demand and employ natural gas more efficiently, both of which advance Holyoke's "green" commitment, it is not a practical

solution for addressing an ongoing and urgent system contingency that could involve a substantial and dangerous loss of supply to a large portion of HG&E's customers (Exh. EFSB-N-1). For these reasons, this alternative was not considered further.

HG&E also evaluated demand responses as a potential alternative to meet the identified need. HG&E recognized that many types of demand response programs are at a very preliminary stage of development and not advanced sufficiently to serve as a means to meet the identified need within the projected schedule. For load management or demand response to be a meaningful alternative, there must be an identified firm, large volume natural gas resource that a customer is willing to reduce service on or interrupt. HG&E, in fact, has already negotiated load interruption agreements for a number of its larger industrial or commercial customers where such customers have agreed to shift to alternative fuels (with typically higher emissions) during peak demand periods. HG&E's remaining customers benefit from these arrangements. There is little incremental potential for demand response on the system at this time.

HG&E is monitoring pilot programs being advanced such as the promotion of controllable thermostats. These programs may secure limited demand reductions over a brief period of time, but would not result in sufficient demand reductions to safely and effectively eliminate the need for supplemental natural gas during a protracted cold snap. HG&E will continue to monitor the development of this important resource option but determined that demand response would not meet the identified need or schedule and, therefore, was not considered further.

8. More Accelerated Electrification.

HG&E further evaluated the potential of a more accelerated path to system electrification as a project alternative. Consistent with the Commonwealth's commitment to and Holyoke's residents' interest in clean and renewable energy, HG&E has established and is effectively implementing a comprehensive pathway to a "net zero" carbon future. As noted, HG&E already secures a substantial portion of its electricity from renewable and carbon-free resources, including the material deployment of hydro and solar generation as well as the effective deployment of

electric battery storage (Exh. HGE-1, App. G, at 2-3; Exh. EFSB-PA-15, Att. (1), at 13). HG&E's role as a provider of both electricity and natural gas service will continue facilitate this transition on a cost-effective basis and enable HG&E to build upon its high level of customer trust and its historic leadership and record of substantial achievement.

HG&E has conducted a number of analyses to advance its residential electrification systems, including benefit analyses of ASHP (and geothermal) technology as well as conducting a detailed "mapping" of its customer base to more effectively "target" customers for electrification (RR-EFSB-1; Exh. EFSB-PA-17). HG&E currently also offers rebates and other financial incentives for various electrification measures and will continue to explore additional programs to help customers to convert from the highest emitting fossil fuels to electricity (e.g, EXH. HGE-1, App. G, at 7; RR-EFSB-17, Att. (1), at 4; Exh. EFSB-N-25; Exh. EFSB-N-28).

HG&E has developed a targeted electrification outreach to residents currently consuming higher emitting fuel sources for heating and other uses. This approach requires a financial commitment from the resident and, while incentives and rebate programs are in place, current cost impacts are expected to limit the scale of participation in such a program roll-out for some time. Customers will also require sufficient time and resources to plan for costly, customer-owned system upgrades to be able to switch to electric equipment or appliances.[20] For example, despite aggressive marketing to date, limited numbers of customers have converted to ASHPs and similar technologies (Exh. EFSB-N-10).

Beyond "customer acceptance," a major variable to meeting accelerated electrification is that HG&E's electric distribution system will require costly and substantial infrastructure upgrades to accommodate an increase in electric load. Current system forecasts project an increase of up to three times the existing peak summer load with a new system peak load occurring during the winter heating season (Exh. HGE-1, App. H, at 1). The necessary upgrades to HG&E's electric

[20] HG&E is also advancing programs for the electrification of the transportation sector, such as "EV" charging stations (Exh. EFSB-PA-16).

distribution system are expected to be completed over the course of at least 15 to 20 years and are designed mainly to address the electrification of homes and the transportation sector at an estimated cost of $150 million in 2022 dollars based upon what is now expected to be a dramatically understated estimate (Exh. HGE-1, App. H; RR-EFSB-16 (multiple elements needed for distribution upgrades have experienced in excess of 400% cost increases subsequent to the preparation of HG&E's cost estimate)).

HG&E also analyzed the "energy supply equivalency" of the Project to certain renewable energy options to estimate the cost of necessary generation. Applying established capacity factors, and cost estimates for solar and on-shore wind generation capacity, HG&E calculated that at least 469 MW of installed solar capacity at an approximate cost of $469 million or 174 MW of installed wind capacity at an approximate cost of $226.2 million would be required (RR-EFSB-4).[21] These costs and associated impacts were substantial and, moreover, this level of resources could not be available on a timely basis.[22]

Another challenge facing accelerated electrification will be the added costs and the importance of equitable cost recovery. The substantial costs of an overly-accelerated path toward electrification will necessarily raise customer rates and limit the amount that customers could afford to replace or upgrade appliances or heating equipment (assuming such equipment and licensed electricians were available). See Section VI, infra. Regarding "energy burden." Rate increases just to cover distribution upgrades (a relatively small portion of needed investment to facilitate electrification) were estimated to be nearly 40% (RR-EFSB-16). HG&E continues to be mindful of the need to ensure equitable cost recovery and not "overburden" customers least able to afford the transition. Given Holyoke's sizeable portion of low-income customers, many of whom

[21] These requirements and costs might well be higher as no consideration was made to reflect likely transmission losses.

[22] HG&E did not reflect added transmission costs, but certainly expects that substantial transmission investment will be required in New England to support the expected transition and HG&E's customers will be assigned a portion of such costs.

are renters (RR-EFSB-24), this element of electrification will be a continuing challenge, even with Holyoke's extraordinary efforts to date.

HG&E expects that it will continue to achieve greater and increasing customer participation in future years as implementation costs are reduced and the electric distribution and transmission systems advances to reliably meet the growing demand. While these electric system upgrades will be strategically implemented, HG&E understands that it has an obligation to maintain reliable and least-cost gas distribution service and notes that the small, incremental capacity available with the proposed Project could well enable the immediate displacement of certain fossil fuel uses and the orderly transition to electrification for customers (RR-EFSB-14 (modest "targeted" gas conversions could save millions of tons of community CO_2 emissions pending electrification, a measure that HG&E believes could be over 50 million tons over ten years depending upon the fuel that is displaced (id.))).

Reliance upon electrification is not a comparable alternative to the Project in terms of the need to take timely and cost-effective actions to enable HG&E to continue to provide safe and reliable service to its existing natural gas customers and, therefore, this alternative was not considered further for purposes of meeting the identified need. HG&E's climate commitment remains strong and HG&E expect to continue to play a leading role in the transition.

9. Conclusions on Initial Analysis of Ability of Project Alternatives to Meet Identified Need.

HG&E determined that three project alternatives would be able to meet the identified reliability need by providing peak day or cold snap gas capacity and should be examined more comprehensively: (i) addition of an additional tank at the West Holyoke Facility; (ii) construction of a new LNG facility with storage capacity; and (iii) expansion of a portion of the Northampton Lateral. These project alternatives all provided some modest measure of additional strategic flexibility for the limited displacement of fuels such as oil that are not available under the ongoing

moratorium. These project alternatives were then evaluated based upon their comparative cost, reliability or operational benefits and environmental impacts.

C. Comparative Analysis of Practical Alternatives.

1. Cost.

HG&E performed detailed cost comparison of the three practical alternatives. HG&E determined that the proposed Project would cost approximately $4.4 million to construct and, if the cost of certain unrelated improvements to the West Holyoke Facility were included, total construction cost would be approximately $7.8 million (Exh. HGE-1, at 4-8). There would be no material change to HG&E's operating costs of the West Holyoke Facility (Exh. HGE-1, Figure 5-3). The Project is located at an established and existing LNG station, the Site has a level grade, involves limited civil and environmental mitigation requirements, benefits from existing infrastructure and has a limited and more favorable permitting and design process.

HG&E recognized a new, alternative LNG facility that would expand HG&E's peak storage capacity would require a range of complementary equipment including truck-unloading, vaporization, metering, odorant and ancillary electrical and safety systems depending upon the site. If HG&E pursued the construction of a larger LNG facility at the Apremont Highway Site it would retire the West Holyoke Facility. Permitting, construction and mitigation costs would be substantially higher. The construction cost of this type of LNG facility with a larger, field-erected tank was estimated to be at least $70.1 million. Operating costs would be higher than current costs associated with the West Holyoke Facility. A smaller LNG storage facility at Whiting Farms Road Site would cost approximately $20.5 million, but would be expected to double annual operating costs associated with LNG operations or increase costs by approximately $720,000 (see Exh. HGE-1, at 5-2 for a summary of capital costs and at Figure 5-3 for a comparison of operations costs of these alternatives).

The "looping" of a portion of the Northampton Lateral was determined to cost at least $70 million based upon a preliminary cost estimate from Tennessee. HG&E explained that it would

expect actual costs to be higher at the time of construction (Exh. HGE-1, at 6-18). Operating costs would be generally comparable to current conditions as the West Holyoke Facility would continue to be operated on certain peak days, although fewer truck deliveries might need to be scheduled during the winter season due to the expanded firm pipeline capacity (id.).

The Siting Board should find that the proposed Project would be substantially less costly than other practical alternatives. An additional benefit is that the related risk of stranded costs would also be lower with the Project, an important consideration as HG&E continues to transition its customers to expanded electrification and a "net zero" future.

2. Reliability.

HG&E explained that the proposed Project and either of the two alternative new LNG facilities would address the identified reliability concern on peak or near peak days by expanding LNG storage capacity on HG&E's existing system. Thus, reliable service can be maintained if LNG deliveries needed to replenish tank volumes are delayed or affected by adverse weather. This greater flexibility and reliability will ensure the protection of the health and safety of existing natural gas customers. The Northampton Lateral expansion would increase daily available capacity, including on peak or design days. The Northampton Lateral expansion would reduce HG&E's dependence upon LNG deliveries, but increases its dependency on a single gas source off that lateral; as noted, the Project would enable HG&E to serve its full requirements in the event of a gas supply issues associated with the Tennessee system. The Project also enjoys one material, additional beneficial feature in terms of reliability in that the limited scope of work does not require any environmental permitting and, therefore, may allow HG&E to complete the Project and address its identified reliability need in a more timely manner.

The Siting Board should find that all three practical alternatives are largely comparable in terms of reliability and operational flexibility. The Siting Board should find that the Project is somewhat superior in terms of reliability and provides the most flexibility during the ongoing energy transition. As electrification adoption increases, natural gas usage is anticipated to

decrease. The Project offers an operational "scalability" that the other two LNG alternatives cannot, particularly related to stranded costs. HG&E can systematically retire aging assets at the West Holyoke facility if system demand is reduced, all in line with stated policies on equitable cost recovery and the importance of mitigating stranded costs while enhancing reliable service.

3. Environmental.

HG&E conducted a preliminary analysis of potential environmental impacts of the practicable alternatives.

The Project was not anticipated to have substantial environmental impacts during either construction or operations given the existing disturbed nature of the site and its longstanding, existing use. There are no wetland resources, cultural resources or rare species concerns at the West Holyoke Facility. Site preparation requirements are minimal based on the existing facility's fence line and prepared area for the additional LNG storage tank. The West Holyoke Facility enjoys substantial buffering from abutters and established vegetation which provides screening for the adjacent neighborhood. There is also substantial community acceptance for the West Holyoke Facility given its current and longstanding use.

A new LNG facility developed on a undeveloped land site would involve far more substantial construction and operational impacts as such a facility would likely result in a material change to current land use in the area. More expansive and extensive construction would be required due to the necessary site preparation, including clearing of forested areas and grading, increasing impacts during construction. The Apremont Highway Site has substantial areas of exposed and subsurface bedrock which would require extensive rock removal through mechanical (hammering) or blasting construction techniques. The sites considered for this alternative would likely be able to be successfully permitted but would take significant time and would also likely result in more substantial temporary and permanent impacts to environmental resources and adjacent landowners. For example, the Apremont Highway Site would result in impacts to forested land, drinking water supply protection areas and rare species habitat and also be subject to Article

97 provisions (conversion of designated public land). The Whiting Farms Road Site would also require substantial site preparation and is located within an Environmental Justice population. Community acceptance concerns would also be more substantial with these alternative locations in large measure because they are currently undeveloped.

The "looping" of the existing Northampton Lateral would also result in substantially greater environmental and landowner impacts than any of the discrete site alternatives. Construction of a 1.7-mile pipeline with a nominal workspace width of 100 feet would result in over 20 acres of new land alteration with approximately half of that maintained as new, permanent right-of-way. This would result in permanent conversion of forested land and modify the existing land uses along the alignment. A portion of the loop alignment also crosses land with shallow depth to bedrock which would result in blasting or hammering to remove rock. Additionally, the needed pipeline expansion would impact wetland resource areas as well as a property designated for open space and subject to Article 97 protections. Most importantly, the new pipeline would affect a minimum of 24 properties and, unless routed away from the existing pipeline, would require construction within close proximity to existing residences.

The Siting Board should find that the Project has the least environmental impact of the considered alternatives, involves, by far, the least construction-related impacts of all practical alternatives and results in the least incremental operational impacts.

4. Conclusion.

The Siting Board should find that HG&E identified and evaluated an appropriate range of alternatives (including non-gas supply alternatives) to meet the identified need to provide additional supply capacity on a peak day or extended periods of cold weather to continue to provide reliable service to its existing natural gas customers. HG&E's analysis of alternatives considered: (i) the no-build alternative; (ii) the Project; (iii) alternative LNG facility options; (iv) the expansion of the Northampton Lateral; (v) interconnections with neighboring gas distribution systems; (vi) CNG and propane-air; and (vii) energy efficiency, demand response and accelerated

or targeted electrification. The Siting Board should also find that the Project is the superior alternative to meet the identified need in a reliable, least-cost and least-environmental impactful manner.

IV. SITE SELECTION

A. Standard of Review.

Section 69J requires the Siting Board to review alternatives to planned projects, including "other site locations."[23] In implementing this statutory mandate, the Siting Board requires a petitioner to demonstrate that it has considered a reasonable range of practical siting alternatives, while seeking to minimize cost and environmental impacts and ensuring a reliable energy supply. Northeast Energy Center, at 48; Lowell-Tewksbury, at 31; Colonial Gas (2016), at 20; Whately LNG, at 32. See also, Town of Sudbury v. EFSB, 487 Mass. 737, 754-755 (2021); Town of Winchester v. EFSB, 98 Mass.App.Ct. 1101 (2020) (unpublished decision). To do so, a petitioner must satisfy a two-pronged test: (1) the petitioner must first establish that it developed and applied a reasonable set of criteria for identifying and evaluating alternative sites in a manner that ensures that it has not overlooked or eliminated any routes that, on balance, are clearly superior to the proposed route; and (2) the petitioner must establish that it identified at least two noticed sites or routes with some measure of geographic diversity. Northeast Energy Center, at 48; Lowell-Tewksbury at 31; Colonial Gas (2016) at 20-21; New England Power Company d/b/a National Grid, EFSB 13-2/D.P.U./13-151/13-152, at 38-39 (2014) ("Salem Cables") at 34-35. However, given that the designation of a noticed alternative site: (1) is not required by statute; (2) necessitates that a project proponent expend significant funds in both developing and supporting a noticed alternative site; and (3) has the potential to raise concern unnecessarily among potential abutters and others in the affected communities, the Siting Board has indicated that a noticed alternative site (or route) may not be warranted in all cases. Lowell-Tewksbury, at

[23] HG&E acknowledges that there is some overlap between its "alternative" analysis and the site "selection" review given that no other "site" could involve the same very limited scope of work as is required for the Project.

31; Colonial Gas, at 21; New England Power Company d/b/a National Grid, 20 DOMSB 1; EFSB 12-1/D.P.U. 12-46/12-47, at 46 (2014) ("IRP"). But see Lowell-Tewksbury, at 31; Colonial Gas (2016), at 21, where the Siting Board found the company's decision not to notice an alternative route to be reasonable.

B. The Company's Site Selection Process.

The Company demonstrated that its site selection process was comprehensive and rigorous and designed to "identify appropriate sites, to evaluate appropriate sites and then to select a preferred site of location for the addition of LNG storage capacity." Exh. HGE-1, at 5-1. HG&E's approach was designed to ensure that no clearly superior options were omitted from consideration (id. at 5-12). An initial step for the Company was the establishment of a study area for the Facility, identifying potential sites within that area and, finally, comparing these sites using an established set of cost, environmental, community and operational criteria (id. at Figure 5-1). The Company next confirmed its analysis by the application of the Siting Board's performance standards that are applicable to new LNG facilities (id. at 5-1). Finally, the Company determined that given the substantial benefits of the Site in terms of cost, environmental impacts and reliability and the risk of inappropriate concern, it was appropriate to propose to notice only the West Holyoke Facility parcel and not other alternatives.

1. Identification of a Study Area.

The Company properly recognized that any additional LNG storage capacity would need to interconnect to its distribution system and, preferably, its high-pressure distribution system (id. at 5-2). The Company explained that it maintained a strong preference for sites within Holyoke given the "characteristics and principal location of [its] existing high-pressure gas distribution system and that the majority of HG&E's customers are located in Holyoke" (id.). The Company nevertheless established its entire service (including portions of Southampton) as the "study area" for its analysis, even though it recognized that any location in Southampton would require a lengthy, new high-pressure gas main (approximately 2.5 miles in length) and would involve a

range of other issues (id.). The Siting Board should find that the Company's study area was reasonable and appropriate and ensured that no clearly superior siting alternative was omitted from consideration.

2. Identification of Potential Sites.

The Company employed a highly organized and comprehensive approach to identify suitable sites for the addition of incremental LNG storage capacity. Two initial determinations were made by the Company. First, the Company recognized that the West Holyoke Facility was an "obvious initial site," particularly because of the earlier design and configuration for a fifth tank. The Company properly determined that the West Holyoke Facility "offered" a number of benefits and opportunities that would "enhance reliability of operations, secure cost savings and reduce potential impacts to landowners and the environment" (id.).

The Company nevertheless completed a rigorous effort to identify and analyze other potential sites to ensure that superior site alternatives were not overlooked. An initial step in this process was the development of appropriate site selection criteria, similar to but more refined than during the alternative analysis. The Company's site identification or selection criteria were:

- Minimum of 10 acres of available land, which was identified as the minimum amount of space for a "shop-fabricated" tank, other necessary equipment and required buffer zones.
- An additional factor was the standard of at least 25 acres of available land, identified as the minimum amount of space needed for a "field-erected" tank, other necessary equipment and required buffer zones.
- Land was owned by Holyoke or known to be available for acquisition at a reasonable cost.
- On or near the Company's high-pressure distribution system.
- Initial consideration land uses and abutters, favoring sites with greater distances or screening opportunities.
- Reasonable access to major roads and highways.
- Locations that would likely to be acceptable to key stakeholders such as the Holyoke Fire Department.

The Company considered these criteria by reviewing municipal maps, consulting with other Holyoke Departments (particularly the Holyoke Office of Planning and Economic Development) and conducting site inspections. The Company explained that it was particularly familiar with the study area given the ongoing management of HG&E operations and the fact that many of the Project team members were long-time residents of Holyoke. This process led to the preliminary identification of three alternative sites in addition to the West Holyoke Facility: the Whiting Farms Road Site, the Apremont Highway Site and the Southampton Site.

The Company considered each of these site locations in developing a conceptual plan for a new LNG storage location. For example, the Whiting Farms Road Site would require the addition of all the elements of a new LNG facility with only a single 70,000 gallon tank. The West Holyoke Facility would need to remain in operation for this alternative. The Apremont Highway Site and the Southampton Site were large enough to support and the Company would design a larger, field-erected tank at these locations and would decommission the West Holyoke Facility's LNG operations. The Company properly determined to eliminate the Southamption Site from further consideration because of the operational challenges with the needed long interconnection line the substantial land use and impact challenges and the cost and challenges of acquisition and permitting (id. at 5-3 – 5-4).

3. Description of the West Holyoke Facility, the Whiting Farms Road Site and the Apremont Highway Site and Respective Facility Proposals.

(a) West Holyoke Facility.

The West Holyoke Facility consists of four parcels off of Mueller Road in the western portion of Holyoke with an aggregate area of approximately 25.65 acres (Exh. HGE-1, at 6-2). The Site has been operated as a natural gas meter station and LNG peaking facility for many

years.[24] The Site is flat and covered largely in gravel or pavement. HG&E explained that the West Holyoke Facility was originally constructed in 1971 with two 55,000 gallon LNG storage tanks, an LNG truck unloading station and an LNG vaporization system (Exh. HGE-1, at 1-1). In 1974, HG&E planned to add three additional tanks, but elected to add just two additional 55,000 gallon LNG tanks (id.). A new, upgraded remote-heated vaporization system was installed in 1999 (id.). The West Holyoke Facility has operated safely, effectively and successfully since 1971.

The West Holyoke Facility's equipment is surrounded by a security and vapor retention fence. The West Holyoke Facility is adjacent to a large solar generation installation. The nearest residence to the Project is approximately 440 linear feet from the Project location (RR-EFSB-10). The Project would involve the addition of a fifth LNG storage tank generally in the location of the previously-planned fifth tank. HG&E also plans to use the Project's on-site contractors to perform unrelated needed maintenance and capital improvements.

(b) Whiting Farms Road Site.

The Whiting Farms Road Site consists of two parcels in southeastern Holyoke with a combined area of 10.98 acres (Exh. HGE-1, at 5-3). The Whiting Farms Road Site is currently undeveloped and heavily wooded (id. at 5-4). Any LNG facility constructed at this location would require all the elements of a new LNG facility, namely a new storage tank and also a truck unloading station, vaporization facilities, metering equipment and an odorant system. This location only provides sufficient space for a single 70,000 gallon LNG tank, thereby requiring the continuing operation of the West Holyoke Facility. HG&E explained that there were several challenges with development at the Whiting Farms Road Site, including the need for extensive clearing, lack of any existing services and the site's proximity to substantial residential and EJ populations (id.).

[24] The West Holyoke Facility was developed in the mid-1950s, as a gate station and L.P. air facility. As noted, LNG storage and vaporization as added in 1971 and the L.P. operations were retired in the early 1980s in line with industry practice (Exh. EFSB-PA-14).

(c) Apremont Highway Site.

The Apremont Highway Site is an approximately 550 acre parcel in western Holyoke, with most of such land being undeveloped and heavily forested. The Holyoke Water Department currently operates and maintains two large water tanks on a portion of the parcel (Exh. HGE-1, at 5-4). Given the size of this parcel, the optimum facility design and construction would be an entirely new LNG facility with a larger, field-erected LNG tank (id.). The West Holyoke Facility LNG equipment would be decommissioned if this site and facility design were pursued.

The Apremont Highway Site involves a number of challenges to development. First, substantial clearing and grading would be required together with the construction of an access road. There are no utilities or services at the site. The site also involves a number of environmental challenges, including likely habitat areas, Clean Water Act ("CWA") and Wetlands Protection Act ("WPA") requirements, particularly the need to protect public water supply wells (id. at 5-4 – 5-5). As noted, the parcel is also subject to Article 97 protection.

(d) Conclusion on Site Selection Criteria.

The Siting Board should find that HG&E developed and applied rigorous and appropriate site selection criteria and that HG&E's application of this process resulted in the identification of a reasonable and appropriate range of site alternatives.

4. General Description of Project Construction.

HG&E explained the Project construction would take approximately 24 months, depending upon when the Project receives Siting Board approval. The longest lead item, the proposed new LNG tank, is projected to require 17 months from the time of order to delivery for on-site installation (Exh. HGE-1, App. D, at 1).[25] Actual on-site work activities, including Site preparation are expected to require approximately eight months in aggregate (id.; see also, Exh. EFSB-CM-7).

[25] The Company has sought to reserve its place in the order "queue" with the tank vendor in an effort to address time considerations.

Upon Siting Board approval, HG&E expects to execute a Construction Agreement with an established and experienced contractor. The selected contractor will assume the obligation to assure that all direct or subcontracted work is executed safely, timely, at a high quality and in a manner mindful of the schedule (id.).

The on-site construction work will consist of a number of different tasks, including: site preparation; sediment control and new "dike" construction; foundation installation; tank delivery and installation; major equipment (including new vaporizers associated with planned complementary work) delivery and installation; process piping installation; installation of ancillary structures and electrical systems; and, finally, commencing testing and training (id. at 1-2). The necessary equipment and personnel at the Site would vary over time, with a small contingent of operations personnel and the intermittent arrival of equipment and the removal of construction waste (RR-EFSB-9). HG&E explained that typical work hours at the Site would be weekdays between 7:00 a.m. and 5:00 p.m., although some limited activities, particularly start-up and testing, might need to be performed over a longer continuous period and would likely extend into weekend hours.

Any construction at the Whiting Farms Road Site or the Apremont Highway Site would be far more involved, comprehensive, impactful and of much longer duration, particularly due to the need for clearing and far more extensive site preparation.

5. Assessment of the Candidate Sites.

The Company next conducted a more "rigorous and refined analysis" of the specific facilities that would be required at the West Holyoke Facility or the Whiting Farms Road Site or the Apremont Highway Site. The Company's team completed detailed analyses of each potential site in terms of environmental impacts cost and reliability or operations flexibility. A final step was the analyses of these sites pursuant to applicable design standards.

(a) Environmental Impacts.

The environmental impacts from the Project or alternative facilities at the Whiting Farms Road Site and the Apremont Highway Site are described below. The Siting Board should find that the West Holyoke Facility location for the Project is superior in terms of impacts and that the environmental impacts of the Project are minimized with the mitigation proposed by HG&E and described below.

(i) Environmental Analysis.

The Company's team employed traditional siting models for the environmental analysis with inputs based upon extensive field and data base investigations in conducting the comparative environmental analysis of the candidate sites. The first, refined model employed by the Company produced a detailed comparative analysis applying a comprehensive range of criteria with specific scores at each location (Exh. HGE-1, Figure 5-D). This analysis was, for example, substantially similar to a site comparison model reviewed and accepted in Northeast Energy Center. Engineering and environmental experts participated in this analysis along with additional subject matter experts as needed. The comprehensive comparative analysis of evaluation criteria applied 18 separate factors in a manner consistent with sound siting practices and established precedent (zoning was not considered a relevant comparable factor for any site, as HG&E is a municipal utility and municipal facilities are permitted within all zones according to the current municipal ordinance) (id. at 5-6, Figure 5-1; see also, Holyoke City Code of Ordinances, Appendix A, Section 4-3 (B.9)). The Company explained that "scores" were largely developed and assigned based upon a consensus-based process involving the various experts on the Project team (id. at 5-6).

The result of this analysis clearly demonstrates that the existing West Holyoke Facility site is substantially superior to the two alternative sites with respect to potential environmental impacts, as the West Holyoke Facility site was assigned the highest possible score for 17 of the 18 factors (Exh. HGE-1, at 5-6). One of the critical factors supporting use of the existing West Holyoke Facility was the existing availability within the developed portion of the property that

would limit the need for new land disturbance, site preparation and construction-related impacts. The existing West Holyoke Facility site also minimizes impacts to the surrounding community, as the Project is consistent with the current land use and does not affect any additional landowners.[26]

The existing West Holyoke Facility Site does not contain any recognized environmental conditions or "*de minimis*" conditions. An indicative measure of the attractiveness of this site is that no filing requirement is "triggered" pursuant to the Commonwealth's comprehensive review pursuant to the Massachusetts Environmental Policy Act ("MEPA") program or the Project does not require any additional environmental permits or approvals with respect to natural or cultural resources, air emissions or noise (Exh. HGE-1, at 4-10). The Whiting Farms Road and Apremont Highway sites both involved a range of environmental impacts requiring permits or other regulatory approvals.

In addition, HG&E also applied a comparative model in the format described in 980 CMR Section 10.02 of the Siting Board's regulations. See Exh. HGE-1, Figure 5-4. This model requires a summary presentation and analysis of a diverse set of environmental factors coupled with cost and reliability considerations. The application of this model in terms of environmental factors was also based upon a consensus approach by the Project team when possible.

The Siting Board should find, based upon these comprehensive analyses, that the addition of a new LNG storage tank at the existing West Holyoke Facility is substantially superior in terms of minimizing environmental impact, but also that its limited impacts to the environment will be effectively mitigated by design and construction plans. The two alternative sites necessarily involve extensive environmental impacts and would require multiple environmental permits/clearances prior to the commencement of any construction activities.

[26] HG&E provided a comprehensive plan to mitigate any construction or operational impacts associated with the Project in the Analysis supporting its Petition (Exh. HGE-1, at § 6.0, App. D, App. J, App. K).

(ii) Wetlands and Water Resources.

The West Holyoke Facility consists of approximately 25.65 areas bordered outside of its fenced area by upland temperate-deciduous forest (Exh. HGE-1, at 6-2). Gravel buffer areas outside the fence line are mowed regularly. The Company's expert environmental consultant performed detailed field inspection of the West Holyoke Facility, including an assessment of any plant species located on the Site and the Site's soil conditions. The expert concluded that "there are no federal, state or locally jurisdictional wetlands within [the Site] or within 100 feet of the [S]ite boundaries" (id at 6-3). In addition, no perennial streams were identified within 200 feet of the Site's boundaries (id.). Evidentiary mapping demonstrated that the distance to the closest wetland to the Project was 650 feet and then distance to the closest water body (a perennial stream) was 885 feet (RR-EFSB-8). HG&E also confirmed that no flooding occurs at the Site (Tr. 126). The consultant properly explained that no wetland protection regulations were applicable to the Site and, therefore, no associated permits or special mitigation measures were required during construction (id.).

The Company also explained that the Project will not impact any water supply districts or require significant water usage. HG&E explained the wellhead protection zones have been established by the Massachusetts Department of Environmental Protection ("MassDEP"). So-called Zone I zones extend generally between 100 and 400 feet from the applicable source; Zone II can extend for up to one-half mile. (id. at 6-4). The Site is not located within any MassDEP approved wellhead protection zones and is not located within any locally-mapped groundwater protection zones. The Project's "incremental" water demand is negligible and the West Holyoke Facility's requirements will continue to be served from an on-site private well (id.). No "new water-related infrastructure" is required in connection with the Project (id.).

HG&E presented a comprehensive plan for the Project's compliance with MassDEP's Stormwater Management Standards (Exh. HGE-1, App. J; Tr. 138). The plan is designed to meet or exceed requirements that post-development stormwater flows be equal to or less than the

predicted, pre-development flow. HG&E's consultants analyzed 2-year, 10-year, 100-year and 24-hour storm events at the proposed stormwater discharge areas (Exh. HGE-1, at 6-7). Importantly, because the Project will only temporarily disturb approximately 0.71 acres of the Site in total with only 0.158 needed for the tank (Exh. EFSB-PA-7), no U.S. Environmental Protection Agency Construction General Permit is required (Exh. HGE-1, at 6-7). A material enhancement is reflected in the design as the Project's stormwater management system will include a number of "best" practices pre-treatment elements such as a "grit separator" and a sediment forebay (Exh HGE-1, at 6-7; App. J, at 7).

HG&E will also implement a number of mitigation measures to control erosion, including: minimizing the quantity and duration of soil disturbance; protecting areas of concern; installing and maintaining sediment control measures; promptly stabilizing exposed soils after construction; and follow-on inspections of restored areas (Exh. HGE-1, at 6-8). The incremental water requirement would be comparable (and largely negligible) at all sites (with the Project requiring the least incremental potable water). HG&E explained that the Project does not require approvals or specific mitigation requirements (although HG&E nevertheless committed to using best practices for sediment control).

HG&E demonstrated that construction at the Whiting Farms Road Site would not impact wetlands and that this site was also outside surface water protection areas (Exh. HGE-1, Figure 5-4, at 1). The Apremont Highway Site, however, would impact a wetland system, is likely located within the 200-foot Riverfront Area associated with a perennial stream and is located within both Zone I and Zone II surface water protection areas (id.). Both alternative sites would require far more extensive construction mitigation measures due to clearing and site preparation.

The Siting Board should find that the Project at the Site and the additional LNG facility required at the Whiting Farms Road Site would involve negligible, if any, impacts to wetlands and waterways. The Siting Board should also find that the alternative facility at the Apremont Highway

Site would involve more substantial wetlands and waterways impacts and extensive mitigation requirements.

In sum, the Siting Board should find that the Site is preferable with respect to wetlands impacts, water use requirements and stormwater management systems (in large part due to the existing characteristics and operation of the West Holyoke Facility). The Siting Board should also find that the Project's proposed stormwater management system plan is adequate and appropriate. The Siting Board should also find that, with HG&E's planned construction mitigation practices, wetlands and water use impacts will be minimized.

(iii) Land Use.

HG&E demonstrated that the Project was consistent with existing land use and applicable land use or development policies. The Project will not result in a material change in the use or character of the West Holyoke Facility. The continued use of that facility's existing equipment for purposes of maintaining reliable service and the addition of only a small, new incremental tank will facilitate the planned and ongoing transition to electrification by enabling serial tank retirements with limited standard costs. No EJ communities are within one-mile of the Project and the Project will enable the continuing provision of safe and reliable natural gas service so as to facilitate the ongoing, orderly transition from fossil fuels (Exh. HGE-1, at 6-22; Exh. EFSB-EJ-2; Exh. EFSB-EJ-3). The Project (together with the complementary work) may enable very limited strategic oil conversions where electrification is not possible. These efforts could deliver community emissions reductions and some modest economic development benefits.

The West Holyoke Facility fence line and the adjacent solar array and existing buffer trees provide a substantial buffer for the benefit of nearby residents. The Project will be approximately 440 linear feet to the closest residence from the Project (RR-EFSB-10), and the current land use has been in continuous operation for more than 50 years (Exh. HGE-1, at 1-1). There are no cultural or historic resources within the Site and the Site "has limited archeological sensitivity" (Exh. HGE-1, at 6-18).

The Whiting Farms Road Site is located squarely within an EJ neighborhood and any LNG facility at that location or at the Apremont Highway Site would result in a substantial land use change as utility operations are not conducted at such locations (Exh. HGE-1, at 4-3, 5-4, 5-17). Indeed, the Whiting Farms Road Site and the Apremont Highway Site are largely undeveloped and wooded (Exh. HGE-1, at 5-4; Figure 5-4, at 2).

The Siting Board should find that the Project will have only minimal, if any, land use impacts, while there will be material land use impacts at the Whiting Farms Road Site and the Apremont Highway Site. The Siting Board should also find that with the application of HG&E's construction mitigation plan and Project layout, the Project will minimize local use impacts.

(iv) Traffic.

HG&E explained that existing traffic levels at the West Holyoke Facility are limited (Exh. EFSB-T-1); that the Project would largely maintain existing traffic patterns and that only limited and temporary impacts would be associated with construction. HG&E indicated that it has not received "complaints from any area resident or business" with respect to "noise, pollution or any other negative impact associated with regular vehicle trips to and from the site" (Exh. EFSB-T-3). HG&E explained that, with the addition of the Project, truck traffic would likely increase moderately from the current average of 100 truckload deliveries of LNG per year (0.27 trips per day) by approximately 0.08 trips per day (an increase of one trip every 12 days on average) (Exh. HGE-1, at 6-18). Over time, truck deliveries will decrease as electrification proceeds (id.). The slight increase in LNG truck deliveries is the result of two factors. First, "boil off" gas will increase with an additional tank (Tr. 191). This gas is injected into the distribution system and results in a slight, but commensurate, offset to required pipeline gas deliveries. A second potential, cold weather-only related increase in traffic would be associated with deliveries resulting from the complementary work that would support minimal strategic customer conversions.[27] For example,

[27] The Project alone will not support any targeted additions.

in a particularly cold year that could equate to approximately 20 additional deliveries to replenish inventory to be able to serve targeted customers; in a mild year, such as the 2022/2023 winter, no incremental deliveries would be required. No local traffic delays are expected, except, perhaps, with the one-time delivery of the proposed LNG tank during construction (which delivery should be coordinated with state and local traffic and police officials).

HG&E explained that during an expected an approximately 31-week on-site construction period for the Project and the complementary work, truck traffic would be limited to construction workers and periodic equipment deliveries. Truck traffic will be comprehensively managed and would be limited, preliminary daily arrivals of labor (five per day), equipment deliveries and, near the end of construction work, an increased volume of excavation and commissioning services vehicles (9-10 per day) (Exh. HGE-1, cf. 6-17; RR-EFSB-9). Major deliveries will be coordinated with police and emergency personnel (id).

The Whiting Farms Road Site enjoys a modest benefit in terms of proximity to highways. LNG facility development at either the Whiting Farms Road Site or the Apremont Highway Site, however, would involve far more substantial traffic impacts as compared to existing conditions at these locations, both during longer, protracted construction and, thereafter, operation.

Accordingly, the Siting Board should find that traffic impacts during construction and operation of the Project will be minimal, with traffic patterns being in line with the current and longstanding operation of the West Holyoke Facility. Given HG&E's plan to coordinate the delivery of the tank with traffic and police officials, the Siting Board should also find that traffic impacts would be minimized.

(v) Noise.

HG&E explained that after construction of the Project, the operation of the West Holyoke Facility will continue to comply with MassDEP noise-related standards at all sensitive receptors and result in no incremental impacts (Exh. HGE-1, at 6-14; Exh. EFSB-NO-1). The proposed tank will not generate any noise during regular operation (id.). No operational sound mitigation is

required under relevant regulations or performance standards (id. at 6-17). Thus, the only Project-related noise impacts will be temporary and associated only with short-duration construction.

HG&E developed a range of mitigation measures to minimize any construction-related noise impacts. As an initial matter, HG&E will ensure that construction work is conducted during times specified by Holyoke's noise ordinance, namely between 7:00 a.m. and 6:00 p.m. on weekdays. See Holyoke Code of Ordinances, § 38-72(a); Exh. HGE-1, at 6-15; Tr. 134. In addition, HG&E's construction noise mitigation measures will include: (i) employing and maintaining appropriate noise mufflers would be more significant on all equipment; (ii) muffling enclosures on any continuously running equipment such as a compressor; (iii) employing less noisy practices where practicable; (iv) promptly turning off idling equipment; and (v) locating equipment as far from receptors as is practicable (Exh. HGE-1, at 6-16). HG&E will have a representative on-site at all times during active construction to ensure compliance with all construction mitigation measures, including those pertaining to noise (Tr. 122).

Construction at the Whiting Farms Road Site and the Apremont Highway Site would be more involved and of a far longer duration. As such, construction-related noise at these sites would be more substantial and extend over a far greater period.

According, the Siting Board should find that the Project is the preferred site location in terms of any noise impacts and, with the application of HG&E's planned noise suppression measures, that the noise impacts of the Project would be minimized.

(vi) Air.

HG&E explained that the operation of the Project would not generate any new emissions and, therefore, no approval of MassDEP is required (Exh. EFSB-PA-2). The nature of LNG tanks and the interconnection of tanks to HG&E's distribution main system renders it technically impossible to trigger air permit thresholds under either state of federal regulations (Exh. HGE-1, at 6-12). The Project will only generate temporary, short-term construction-related dust or emissions (id.).

HG&E developed and will implement a comprehensive plan to address fugitive dust emissions and construction vehicle engine emissions. In terms of minimizing airborne dust, HG&E will employ water trucks with misters when appropriate. Any soil stockpiled on Site will be covered with plastic sheeting or a similar barrier and "anti-tracking" pads and regular sweeping at Site entrances will also be employed (id.). In addition, consistent with MassDEP air quality regulations and "best practices," HG&E will ensure that: (i) all contractors use low-sulfur diesel fuel in non-road vehicles; (ii) all non-road vehicles will meet or exceed applicable standards under 40 CFR 1039; (iii) contractors use "best available technology" to reduce emissions consistent with United Stated Environmental Protection Agency ("USEPA") standards; (iv) vehicle "idling" time is minimized; and (v) efficient and convenient vehicle staging is employed.

The Whiting Farms Road Site and the Apremont Highway Site will have more substantial construction requirements and, therefore, substantially more construction-related emissions and far more challenges managing dust generated during any such construction.

Accordingly, the Siting Board should find that the Project involves the preferred site in terms of air emissions and, with HG&E's planned construction mitigation procedures, that air impacts of the Project would be minimized.

(vii) Solid and Hazardous Waste.

HG&E completed a comprehensive Phase I Environmental Site Assessment in compliance with ASTM standards (Exh. HGE-1, at 6-8). The purpose of this analysis was to identify any areas of concern and, if appropriate, modifying construction or operation plans for the Project. The ESA determined that: (i) no past, current or future potential releases of oil or hazardous material were identified in the Site; (ii) no "HREC" or evidence of past or historical releases of oil or hazardous material were identified at the Site; (iii) no controlled RECs, or releases of oil or hazardous material were identified at the Site; and (iv) no *de minimis* conditions were found at the Site, namely conditions that do not present a threat or would not be subject to

enforcement (id. at 6-8 – 6-9). As a result, HG&E determined that a Phase II ESA was not warranted for the Site.

In terms of construction-related waste or debris, HG&E established appropriate measures, including seeking to minimize solid waste generation and maximize recycling. Separate customers will be established on-site to promote recycling and recyclables will be transferred to licensed landfills (Exh. HGE-1, at 6-10). No solid waste will be generated by the Project during normal operation. Any limited hazardous materials needed on-site during construction will be maintained consistent with MassDEP regulations and best practices; including measures as "Secondary containment." (Tr. 149-150).[28]

The Whiting Farms Road Site and the Apremont Highway Site may be subject to more extensive remediation, although no Phase I ESA was performed for these sites. Far more substantial waste and debris will be generated during construction at these locations.

Accordingly, the Siting Board should find that the Site was the preferred facility location in terms of solid and hazardous waste generation and, with the application of HG&E's plans for the proper control and disposal of any construction-related waste, the solid and hazardous waste impacts of the Project would be minimized.

(viii) Visual Impacts.

The Company performed a sophisticated visual impact analyses at the West Holyoke Facility which confirmed that "visual impacts of the Project will be minimal" and such impacts "will remain consistent with the West Holyoke Facility and surrounding land use or slightly reduced." (Exh. HGE-1, at 6-23). The West Holyoke Facility is currently surrounded by an 8-foot perimeter fence "fitted with 6-foot slats" which serves as both vapor barrier and visual buffer. HG&E proposes to increase the slat height to 8-feet on multiple sides of the West Holyoke Facility, thereby also increasing the height of the visual buffer. Existing tree cover in the areas outside the

[28] Limited amounts of typical construction materials deemed hazardous will be on-site during construction (e.g., 5-10 gallons of fuel or small amounts of engine oil) (RR-EFSB-11).

fence line also acts as a visual buffer. The Project will also be located at the portion of the Site farthest from area residents and also behind existing tanks. The adjacent solar farm, some forested land (with "evergreen varieties") and the Tennessee right-of-way also provide visual substantial visual buffer that will be maintained after completion of the Project (Exh. EFSB-V-1).

The Whiting Farms Road Site and Apremont Highway Site facilities would involve new construction in undeveloped areas and far more substantial, incremental and permanent visual impacts (Exh. HGE-1, at 4-10).

The Siting Board should find that the visual impacts of the Project will be minimal, while facility development at other sites would result in material and permanent visual impacts. With the planned Project location and increase in vapor retention fence height, the Siting Board should also find that visual impacts at the Site would be minimized.

(ix) Rare and Endangered Species.

HG&E demonstrated that it had properly evaluated concerns with respect to rare and endangered species. HG&E determined that because the Site is already cleared and the Project will not require tree clearing, no additional consultation with the USFWS was required. The Company's environmental experts consulted with the NHESP. While an area of the Site's four parcels was "mapped" as Estimated/Priority Habitat of Rare Species by NHESP, this portion of the parcel is not within the boundary of any proposed workspace so no impact to a state-listed rare species is expected. Further, no additional consultation with NHESP is required. Finally, no certified vernal pools or potential vernal pools are located within or adjacent to the Project or the West Holyoke Facility. Therefore, no specific mitigation measures are required with respect to the Project in terms of rare or endangered species.

The Whiting Farms Road Site and the Apremont Highway Site are likely to have more substantial impacts to wildlife and associated habitats due to the need for substantial tree clearing. The Apremont Highway Site includes extensive wetlands and there are certified and potential vernal pools within close proximity to this location (Exh. HGE-1, Figure 5-4, at 2). Development

at the Apremont Highway Site would require extensive consultation with the Massachusetts Natural Heritage and Endangered Species Program to ensure impacts are fully identified and, if possible, properly mitigated (id. at Figure 5-4, at 2; see also, Exh. HGE-1, App. L, at Figures 2 and 3).

Accordingly, the Siting Board should find that the Site is the preferable facility location with respect to the avoidance of impacts to rare species.

(b) Cost/Economic Analysis.

The Company performed a comprehensive cost assessment for the Project as well as an appropriate structure and operation plan at both the Whiting Farms Road Site and the Apremont Highway Site. Exh. HGE-1, at 5-5, Figure 5-2, Figure 5-3. For purposes of comparative analysis, the Company reflected certain "complementary" improvements at the West Holyoke Facility that will be completed regardless of whether the Project is completed (e.g., vaporizer upgrades). Cost estimates were based upon price quotations from vendors for major equipment as well as the consideration of all required measures, including land acquisitions, site preparation, environmental mitigation and unique construction or operations requirements (id.).

The Company demonstrated that the Project was determined to be substantially superior based upon cost, as the Whiting Farms Road Site requires capital costs of approximately three times greater than the Project (i.e., at least $20.5 million),[29] while the Apremont Highway Site would involve costs nearly ten times greater than the Project (i.e., at least $70.1 million) (id.). Incremental operating costs for the two alternative sites would be 18-20 times greater than those for the Project (id.).

Accordingly, the Siting Board should find that the Project is substantially superior to other site operations in terms of construction and operating costs.

[29] If the Whiting Farms Road alternative was pursued, the planned complementary work would nevertheless be completed (Exh. HGE-1, Figure 5-2, p. 1, n. 5), although the cost would likely increase because of a loss of on-site work economics.

(c) Reliability Analysis.

The Company analyzed the three primary site locations in terms of their relative reliability and operations flexibility (Exh. HGE-1, at 5-6). The Project was determined to provide the "most favorable reliability advantages" in terms of the provision of reliable service in part due to timing benefits. The West Holyoke Facility already contains necessary operating equipment, facilities, utilities and safety systems and its operating staff is highly experienced in the safe and effective operation of that equipment. The West Holyoke Facility has direct access to the Tennessee meter station equipment, enhancing reliability and safety with established operations and response capabilities (id.). While the Whiting Farms Road Site would enjoy modestly improved highway access, the use of this site would involve more complex and less reliable operations as two LNG facilities would need to operate in appropriate balance (e.g., involving greater complexity and staffing and maintenance). The Apremont Highway Site would be large enough to eliminate the need for seasonal LNG refills, so that this alternative would be comparable in terms of reliability.

Accordingly, the Siting Board should find that the Project is substantially superior to the Whiting Farms Road Site and comparable to the Apremont Highway Site in terms of reliability and operational considerations.

(d) Conclusion: Comparative Site Analysis.

The Company demonstrated that the existing West Holyoke Facility site is substantially superior to the two identified site alternatives in terms of cost and environmental impacts associated with construction and operation. The existing site is also generally superior in terms of reliability and operational flexibility, while avoiding substantial stranded costs. Accordingly, the Siting Board should find that HG&E's determination that the existing West Holyoke Facility site should be evaluated as the preferred location in terms of the ability to meet applicable industry

design standards while avoiding and minimizing potential Project-related impacts to the greatest extent practicable was reasonable and appropriate.[30]

(e) Confirmation of Design Standards.

As the final and confirmatory stage of its evaluation and review of potential site alternatives, HG&E evaluated the Project at the West Holyoke Facility location in terms of the ability to comply with regulations applicable to the planned addition of the LNG storage tank. HG&E explained that the principal focus at this stage was to evaluate the requirements and any implications of relevant federal and state LNG siting regulations that are applicable to the Project, including a number extremely conservative requirements within the Siting Board's and federal regulations (Exh. HGE-1, at 5-7 – 5-12).[31] Appendix I of HG&E's comprehensive analysis also summarized the Project's compliance with all design and safety applicable requirements. This analysis was completed by the Project's engineer and supported by multiple experts in LNG facility design and safety.

HG&E explained that the consideration of relevant regulatory requirements "confirmed and validated" the appropriateness of adding the Project to the West Holyoke Facility (id. at 5-8). The HG&E team determined, after careful analysis, that the Project would meet or exceed all relevant standards. A full description of the Project's compliance with all safety and design requirements is provided in Section V, infra.

[30] HG&E's comprehensive analysis demonstrated that the Project would involve very limited impacts, the least cost and secure substantial benefits. A primary factor was the available economics and synergies from the existing operation of the West Holyoke Facility. Other "site" alternatives would involve far greater costs and impacts, and seemingly had no benefits as compared to the Project. HG&E therefore concluded that the preferred course was not to request that other sites be included in the Notice for Public Comment, a practice not required by statute. HG&E's preferred course was to pursue comprehensive, "in person" outreach around the West Holyoke Facility and avoid unnecessary concerns in other areas of Holyoke.

[31] HG&E explained that the relevant codes and standards applicable to the Project's design and operation include:

- 980 CMR 10: Massachusetts Siting of Intrastate Liquefied Natural Gas Storage
- 220 CMR 112: Massachusetts Design, Operation, Maintenance and Safety of LNG Plants
- 49 CFR Part 193: Liquefied Natural Gas Facilities: Federal Safety Standards
- NFPA 59A: Standard for Production, Storage and Handling of Liquefied Natural Gas (LNG) (Only applies to Sections of the 2001 and 2006 Editions incorporated by 49 CFR Part 193)

V. SAFETY COMPLIANCE

A. Standard of Review.

The Siting Board's regulations address LNG safety requirements in 980 CMR 10.00, which includes "regulatory standards for the siting of intrastate LNG facilities proposed for construction in Massachusetts." 980 CMR 10.01(1). The Siting Board requires an applicant to demonstrate that its proposed facility will comply with the Board's regulations governing the siting of LNG facilities, as set forth at 980 CMR 10.00. See Whately LNG at 63-64; Northeast Energy Center, at 170.

1. Overview.

HG&E evaluated applicable design standards and designed the Project at the West Holyoke Facility site to ensure that all Siting Board substantive and evidentiary or presentational regulatory requirements regulations would be met or exceeded. The Siting Board regulations include several requirements that pertain to the design of the Project. The Siting Board's regulations also require the "presentation" or "mapping" of certain zones around a proposed storage facility in the course of the approval process, presumably to facilitate siting review. Finally, there are specific procedures within the Siting Board's regulations for defining areas subject to property "control" requirements and requirements with respect to discrete design elements or procedures.

2. Applicable State and Federal Regulatory Requirements.

While the Siting Board's regulatory standards for the siting of intrastate LNG storage facilities are summarized within Massachusetts at 980 CMR 10.00, other state and federal regulations contain specific requirements for the design, construction, operation, and maintenance of an LNG facility. For example, the Board's regulations specifically state that the Department has the authority "to assure safe and prudent design, construction, operation, and maintenance of LNG facilities" proposed for construction in Massachusetts. 980 CMR 10.01. The Department enforces its own regulations, as well as the federal pipeline safety regulations for LNG facilities, and both sets of regulations include requirements for the siting, design,

construction, operation, and maintenance of LNG facilities. 220 CMR 112.00; 49 CFR Part 193. The Department's regulations incorporate portions of federal safety standards for LNG facilities, 49 CFR Part 193 Liquefied Natural Gas Facilities: Federal Safety Standards, which, in turn, incorporates by reference sections from NFPA 59A, the National Fire Protection Association 59A: Standard for Production, Storage, and Handling of Liquefied Natural Gas. See 220 CMR 112.10.

HG&E demonstrated that the Project will meet all applicable state and federal standards. This brief appropriately addresses HG&E's specific compliance with the Siting Board's regulations with respect to the design, construction and operation of certain LNG facilities.

3. Spill Collection and Impoundment Design.

The Siting Board's regulations contain the requirement that any new LNG storage tank include a separate, new impoundment area or "dike." 980 CMR 10.40(1); Exh. HGE-1, App. I, at 6, Att 1, at 7. The "dike" is required to be "sized" for a capacity equal to 150% of the volume of liquid in the tank (id.). The Project involves a tank with a capacity of 70,000 gallons (Exh. HGE-1, at 2-1) and, therefore, the Siting Board's regulations require that the impoundment dike have a capacity of at least 105,000 gallons (Exh. HGE-1, App. I, Att. 1, at 7). HG&E has designed the proposed impoundment dike to be "38 feet x 38 feet x 11 feet," which will provide a capacity volume of 118,820 gallons, well in excess of the required capacity (id.).

Accordingly, the Siting Board should find that the Project's impoundment "dike" structure will exceed the containment capacity required by 980 CMR 10.04(1)(c).

4. Thermal Safety Requirements.

The Siting Board's regulations at 980 CMR 10.00 include two separate provisions relating to "thermal flux" from a fire. First, 980 CMR 10.02(2)(a)(4) requires that an applicant provide maps which show three "modeled" zones for different heat fluxes: 2,000 BTU/ft^2-hr; 1,000 BTU/ft^2-hr; and 460 BTU/ft^2-hr, as part of a set of presentational or "mapping requirements." Separately, 980 CMR 10.01(2) requires that land area owned or controlled by an LNG facility operator "be of sufficient size" to include a "thermal [radiation] protection zone" – which is to be

determined geometrically from a modeled fire at the top of the secondary containment or "dike" of an LNG tank (980 CMR 10.03(1)(d); Exh. HGE-1, Att. I, Att. 1, at 7). In addition, the Siting Board requires that any LNG storage tank dike cannot be located closer to specified receptors (which distances vary based upon whether the site is within an area zoned for industrial or residential use). The Siting Board's regulations at 980 CMR 10.03(1), "Thermal Radiation Protection," states in part that: the area of the property must be sufficiently large to provide a thermal protection zone; within the protection zone, the dike constructed to impound the LNG may not be located closer to targets listed in 980 CMR 10.03(1)(d) than distance "d." The regulation also includes a figure for geometrically determining protection distance "d." Although not required, the calculated heat flux zones for the Project are all contained within the parcels that make up the Site (Exh. HGE-1, App. I, at 5).

As indicated, HG&E has designed the Project to employ a new, remote impoundment basin north of the new LNG storage tank which will act as the required "dike" structure in accordance with Section 10.04(1) of the Siting Board's regulations. HG&E provided maps depicting the Project's three "heat flux zones" pursuant to the mapping requirements of 980 CMR 10.02(2)(a) (Exh. HGE-1, App. I, Att. 2). These maps also demonstrated that it evaluated the thermal radiation requirements described in 980 CMR 10.03(1) to ensure that the Project's impoundment structure enjoys sufficient separation from non-industrial (residential) uses outside of the Site's properly line (Exh. HGE-1, App. I, Att. 1, at 7). Specifically, given the proposed impoundment area's "surface area" (i.e., 1,444 square feet), the appropriate "protection distance" (or "d") is 137 feet (id.). Based on this calculated distance "d" and, because the topography around the Project site is relatively flat, the "law of cosines" was used to derive a horizontal distance of 262 feet which represents the extent of the "Thermal Radiation Protection Zone," a distance well within the property line for the Site (Exh. HGE-1, App. I, Att. 2).

Accordingly, the Siting Board should find that the Project will fully satisfy the mapping and thermal radiation production requirements of 980 CMR 10.03(1).[32]

5. Vapor Dispersion Safety Requirements.

The Siting Board's regulations also require that the site of any new LNG storage facility be of sufficient size, in the event of an LNG spill, to prevent dispersion of an LNG-vapor cloud with methane concentrations in air above two percent by volume beyond the property line. 980 CMR 10.03(2)(b). The Siting Board's regulations require the evaluation of two different vapor generation scenarios resulting from a leak either from a damaged LNG storage tank on-site or from process piping. 980 CMR 10.03(2). The Siting Boards regulations then require that a facility's design consider the alternative with the greater separation distance requirement. The more extreme scenario considered by HG&E was to evaluate the vapor generation from a "sudden" total spill of the maximum contents of the LNG storage tank, contact of LNG with surfaces of the impoundment system and flash vaporization from the contents of the tank (Exh. HGE-1, App. I, Att. 1, at 9).

The Company presented sophisticated vapor dispersion modeling employing the models specified in the Siting Board's regulations and confirmed that the vapor dispersion zone from the required design event would be confined entirely within the Site (Exh. HGE-1, App. I,

[32] With respect to federal requirements pertaining to thermal radiation from a fire within the spill impoundment "dike," HG&E stated that the Facility will also comply with 49 CFR Part 193 and, section 2.2.3.2 of NFPA 59A-2001 (Exh. HGE-1, App. I, at 5). HG&E explained that 49 CFR Part 193 and section 2.2.3.2 of NFPA 59A-2001 require an LNG facility to be designed in a manner that will prevent certain heat flux intensities from being exceeded at several specified limits:

- 1,600 Btu/hr-ft^2 at a property line that can be built upon assuming the ignition of a design spill (as specified by section 2.2.2.1 of NFPA 59A-2001); and also at the nearest point located outside the owner's property line that, at the time of facility siting, is used for outdoor assembly by groups of 50 or more persons assuming a fire over an LNG tank impounding area;
- 3,000 Btu/hr-ft^2 at the nearest point of the building or structure outside the owner's property line that is in existence at the time of facility siting and used for occupancies classified by NFPA 101 Life Safety Code as assembly, educational, health care, detention and correction, or residential assuming a fire over an LNG tank impounding area; and
- 10,000 Btu/hr-ft^2 at a property line that can be built upon assuming a fire over an LNG tank impounding area.

HG&E's consultants employed required computer simulations in ensuring compliance with federal thermal protection requirements and "tested" the Project pursuant to required assumptions. All three required "zones" "easily" fall within the Site's property lines, thus demonstrating "full compliance with the federal requirements in 49 CFR Part 193." (id.; see also Exh. HGE-1, App. I, Att. 3).

Att. 1, at 13). HG&E explained that the vapor fence around the West Holyoke Facility would limit a vapor cloud from traveling outside the Site's property line at a concentration exceeding two percent in air (id. at App. I, Att. 1, at 11). HG&E's analysis demonstrated that the "maximum concentration" of LNG vapor at the Site's property line would be only 0.74% (commencing approximately one hour after the commencement of such event and diminishing gradually thereafter), thereby maintaining levels well below the applicable two percent threshold. The vapor fence approach, which is an established mitigation measure, has previously been approved by the Siting Board (Northeast Energy Center, at 184; Whately LNG, at 73).

The Siting Board should find that the Project's design fully meets the performance standards and requirements within the Siting Board's regulations for the "Vapor Dispersion Exclusion Zone."

6. Site Design Requirements.

HG&E demonstrated that it has ensured compliance with all other applicable provisions of the Siting Board's design requirements for LNG storage facilities.

The Siting Board's regulations require that the area around a new storage tank be designed for appropriate "separation" to facilitate the predictable movement of personnel, maintenance equipment, and emergency equipment within and around the facility. 980 CMR 10.04(2). HG&E's expert engineer confirmed that the Project's equipment layout would meet the 980 CMR 10.04(2) and, also, for information, that the Project layout as a whole is designed to meet setback requirements governed by NFPA 59A and 220 CMR 112.00 (Exh. HGE-1, App. I, at 6).

The Siting Board's regulations also require the annual inspection and certification of storage tank insulation and sealant. 980 CMR 10.04(3). HG&E confirmed that for the Project, this requirement would not be applicable but it would expressly provide for and conduct annual monitoring and inspections of the new LNG storage tank in its operation and maintenance manual (Exh. HGE-1, App. I, at 7). HG&E noted that inspection of the Project will be substantially similar

to the ongoing and regular processes or tasks now completed regularly for the West Holyoke Faciilty's existing tanks (id.).

The Siting Board's regulations require the development of a plan for removal of rain, ice, and snow from the diked area surrounding a storage tank. 980 CMR 10.04(4). HG&E presented a preliminary precipitation removal plan for the LNG impoundment "dike" area (Exh. HGE-1, App. I, Att. 4). HG&E indicted that the final precipitation plan would be incorporated into the West Holyoke Facility operations and maintenance manual at the appropriate time, but that its preliminary plan was consistent with or exceeded industry standards.

The Siting Board's regulations require the Company submit a safety plan that describes actions to be taken by Company personnel and public safety officials in the event of any accident. 980 CMR 10.04(5). HG&E presented a copy of the existing West Holyoke Facility's Emergency Procedures with its Petition that already addresses these requirements (Exh. HGE-1, App. I, Att. 4). The Company committed to revising the Facility's Emergency Procedures, as needed, to reflect changes associated with the Project prior to commencement of Project operations, which HG&E noted was consistent with approved Siting Board precedent (Northeast Energy Center, at 185; Whately LNG, at 76).

The Siting Board's regulations also require operators of new LNG "tanks" to conduct annual safety "consultations" with certain nearby property owners, as specified in 980 CMR 10.04(5). HG&E explained that because the Site is relatively large, there "are no property owners within" the applicable, affected area provided within this regulation and, therefore, this requirement was not applicable to the Project (Exh. HGE-1, App. I, at 7). HG&E will continue its general practice of being a "good neighbor."

Finally, the Siting Board's regulations require an alarm system that must sound simultaneously with the alerting of the fire department of an accident. 980 CMR 10.04(6). The West Holyoke Facility's existing alarm system already satisfies this regulatory requirement. HG&E indicated that its planned, "new hazard detection devices" would connect the Project to the

existing alarm system (Exh. HGE-1, App. I, at 8). In addition, as part of the "complementary" work at the Site, a new fire alarm control panel will be installed to "enhance and increase the reliability of the existing fire detection system (id.). Specifically, the Siting Board's regulations require that the alarm must also be loud enough to reach persons out to and including the most distant of the three mapped heat flux zones from 980 CMR 10.02(2)(a) (460 BTU/ft^2-hr) or the vapor dispersion zone boundary, whichever is farther. 980 CMR 10.04(6). As noted previously, all these zones are entirely within the property line of the Site, so the existing alarm system is operational and audible with the Site. Thus, the Project design satisfies this condition and, further, there are no "persons" within these zones that would need to "become" acquainted therewith, as required for some neighborhoods.

Accordingly, the Siting Board should find that the Project's design and operation fully satisfy the "Ancillary Requirements" of the Siting Board's regulations.

VI. CONSISTENCY WITH POLICIES OF THE COMMONWEALTH

A. Standard of Review.

HG&E demonstrated that, in line with the requirements of G.L. c. 164, § 69J, its plan for construction of new facilities is wholly consistent with (and, indeed, advances) current health, environmental protection, and resource use and development policies as adopted by the Commonwealth. Northeast Energy Center, at 186; Lowell-Tewksbury, at 72; Andrew-Dewar, at 106-107; Sudbury-Hudson, at 181; see also, Exh. HGE-1, at 7-1 – 7-5.[33]

B. Health Policies.

As recognized previously by the Siting Board, the Restructuring Act states that reliable electric service is of "utmost importance for the safety, health, and welfare of the Commonwealth's citizens and economy." St. 1997, c. 164, § 1(h). The Siting Board has recognized that the

[33] G.L. c. 164, § 69J requires consistency with environmental protection policies of the Commonwealth but does not explicitly recognize energy policies. However, the Siting Board accomplishes its statutory mandate to ensure reliable energy supply with minimum impact on the environment at the lowest possible cost within the context of current energy policies of the Commonwealth. G.L. c. 164, § 69H.

Commonwealth has "established a nexus between reliable energy service and the health of the residents." Lowell-Tewksbury. In the Lowell-Tewksbury, at 73 decision, the Siting Board found that a project that would provide natural gas customers with increased reliability was consistent with the health policies of the Commonwealth as embodied in the Restructuring Act (id).

As reliable gas distribution and electric distribution services are essential to the health, safety, and welfare of residents of the Commonwealth, an improvement in reliability, as provided by the Project, will produce health and safety benefits for the public. See Lowell-Tewksbury at 73. Such benefits are of particular importance in Environmental Justice communities where residents may already bear disproportionate adverse health impacts. See EJ Policy at 7. HG&E demonstrated that the Project provides a needed and important enhancement to the reliability of natural gas distribution service to HG&E's existing customers and, therefore, for the same reasons as in Lowell-Tewksbury, at 73, the Siting Board should find that the Project is consistent with the Restructuring Act.

HG&E has also committed that all design, construction, and operation activities associated with the Project will comply with applicable governmental and industry health and safety standards including the Siting Board's regulations governing LNG facilities (980 CMR 10.00), Massachusetts Natural Gas Safety Code regulations (220 CMR 100.00), federal requirements from agencies including OSHA, DOT, and PHMSA, and relevant codes and standards from the NFPA (see Section VI, supra). HG&E demonstrated that the Project's land use, visual, wetland and water resource, traffic, noise, air, hazardous and solid waste impacts, and site layout limitations have been minimized and that the Project would comply with relevant site size requirements (see Section V, supra.

Accordingly, subject to the Company's specified mitigation measures, the Siting Board should find that HG&E's plans for construction and operation of the Project are consistent with current health policies of the Commonwealth.

C. Environmental Protection Policies.

1. Global Warming Solution Act.

The GWSA, enacted in August 2008, is a comprehensive statutory framework to address climate change in Massachusetts. St. 2008, c. 298. The GWSA mandates that the Commonwealth reduce its GHG emissions by 10 to 25 percent below 1990 levels by 2020, and by at least 80 percent below 1990 levels in 2050. G.L. c. 21N, §3(b). More recent policy developments, following the hearings and briefs in this proceeding, have both increased and accelerated the Commonwealth's GHG emissions reduction targets.[34]

HG&E explained that the Project will advance the goals of the Global Warming Solutions Act in several ways. The Company notes that the Project does not increase the Company's use of natural gas for existing customers, but only provides added security from service interruption due to delivery risk for needed LNG. The addition of a new, tank will also facilitate future, systematic retirements of the existing LNG storage tanks at the West Holyoke Facility as the planned transition to electrification proceeds, all while minimizing stranded costs. The Project being a new state-of-the-art tank may, over time, have a minor, incremental impact in terms of reducing methane emissions from gas facilities consistent with 310 CMR 7.73. The Company expects that there will be only very limited greenhouse gas ("GHG") emissions from "one-time" events such as commissioning and system tie-in (Exh. HGE-1, at 6-12). There will continue to be no fugitive GHG emissions from the West Holyoke Facility during operations as boil-off gas will continue to be directed to the distribution system. The Project could enable the Company to target a very limited number of customers to facilitate oil-to-gas conversion, which conversions are expected to reduce community greenhouse gas emissions (RR-EFSB-14 (community CO_2 reductions after 10 years could exceed 113 million pounds)). These factors were sufficient to

[34] The Siting Board officially notices the following recent policies of the Commonwealth: "Determination of Statewide Emissions Limit for 2050" dated April 22, 2020; "Interim Massachusetts Clean Energy and Climate Plan for 2030" dated December 30, 2020; and "Massachusetts 2050 Decarbonization Roadmap" dated December 30, 2020. 980 CMR 1.06(7).

support a Siting Board finding that a recent distribution project "would be consistent with and promote the objectives of the Global Warming Solutions Act." Lowell–Tewksbury, at 74.

Accordingly, the Siting Board should find that the Project is consistent with and will promote the objectives of the Global Warming Solution Act.

2. Next Generation Roadmap for Climate Policy.

The overriding goal and policy of the Climate Roadmap Act is the reduction of GHG emissions in the Commonwealth over time, to the point where, in 2050, Massachusetts will achieve "net zero" is GHG emissions. This Act envisions implementation of that goal primarily through decarbonization of major sectors of the economy, such as transportation and residential heating, that currently rely on fossil-fueled energy sources such as oil and gas. The 2050 Roadmap describes pathways the Commonwealth could take to achieve the goal of reaching "net zero" emissions in 2050, stating that policy strategies are needed "to carefully manage ongoing and future investments in the gas distribution system […] and manage the orderly and equitable drawdown of fossil fuel use and infrastructure […] needed to ensure equitable outcomes." However, the 2050 Roadmap also notes that "[h]igher costs cannot be borne by the consumers least able to pay, and steps must be taken to provide for an orderly and equitable transition" (2050 Roadmap at 53).

HG&E demonstrated that the Project is consistent with the 2021 Climate Roadmap Act. The Act promulgated a number of features that affect the Company. For example, Section 33 of the Act required that each municipal lighting plant establish a more formal GHG emissions standard. This feature was presumably in line with established GHG reduction goals for the Commonwealth. As noted in Appendix G to the Analysis, HG&E has aggressively promoted and secured renewable energy resources (providing 95% non-carbon-producing electricity in 2021) and is currently well-positioned already to meet standards not applicable for to service providers operating in the Commonwealth for years or even decades. The continuing use of the West Holyoke Facility will also enable HG&E to manage its limited pipeline capacity more efficiently.

The Project also will advance "sector-based" goals, including for natural gas distribution service and heating sectors, by enabling limited, strategically targeted oil-to-gas conversions, all while facilitating the orderly transition to electrification and serial tank retirement in line with Section 9. The Project further enables that the planned reduction in GHG emissions will proceed "equitably" and in a manner that "protects low- and moderate-income persons and EJ populations" as required by Section 10. The Company demonstrated that the Project is, by far, the least-cost, most equitable and least-impactful way to maintain reliable service to its substantial EJ populations. Finally, Section 15 clarified the need to consider a range of factors in advancing important public heath, climate goals by prioritizing "safety, security, reliability of service, affordability, equity and GHG reductions." The Project addresses a critical reliability need advancing safety and security and other operational factors.

Accordingly, the Siting Board should find that the Project is consistent with and advances the objectives of the Next Generation Roadmap.

3. Clean Energy and Climate Plan for 2030.

The Clean Energy Plan implements certain of the goals of the GWSA and Climate Roadmap Act. For many the reasons stated above, the Project is necessarily consistent with the Plan. The Company is aggressively pursuing the Commonwealth's electrification goals but is committed to maintaining safe and reliable service during the transition period. The Project will likely secure some GHG reductions in the short term and thoughtfully facilitate the expected transition by enabling existing tank retirements over time all while avoiding large, stranded costs as warned in the Plan (p. 25).

The transition will also be "just" and "equitable" by providing needed energy at the least-cost and avoiding construction impacts in EJ areas. The added costs of the transition will not be borne disproportionately by those least able to afford such transition. See also, 2050 Plan. Importantly, the Commonwealth's 2050 Plan notes the benefits of coordinated electricity and gas planning of the type implemented by the Company (p. 61). The importance of reliability and safety

during the transition was also emphasized (p. 63). Holyoke's overall efforts to aggressively implement the transition while addressing cost, reliability and safety in the interim is a model for the Commonwealth.

Accordingly, the Siting Board should find that the Project is consistent with and advances the objectives of the Clean Energy and Climate Plan.

4. Environmental Justice and Language Access Policy.

In January 2017, the Executive Office of Energy and Environmental Affair ("EEA") updated its Environmental Justice Policy ("2017 EJ Policy") and, as noted above, the Climate Roadmap Act was enacted in March 2021. The Climate Roadmap Act sets forth environmental justice principles to protect rights to a clean and healthy environment, regardless of race, color, income, class, handicap, gender identity, sexual orientation, national origin, ethnicity or ancestry, religious belief, or English language proficiency. To promote that goal, the Climate Roadmap Act requires the meaningful involvement of environmental justice populations and requires additional measures to improve public participation, such as providing translation services and public notices in English and any other language spoken by a significant number of the affected environmental justice population. St. 2021, c. 8, § 60. For example, although not relevant here, the environmental review process conducted by the MEPA Office has been revised to reflect additional focus on environmental justice populations.[35] On June 24, 2021, EEA revised the 2017 EJ Policy, consistent with the Climate Roadmap Act ("2021 EJ Policy").[36,37] The EJ Policy also applies to the Siting Board. Winchester v. EFSB, 98 Mass.App.Ct. at 1101.

[35] The Climate Roadmap Act requires MEPA to promulgate regulations to implement sections of the Act within 180 days after the effective date of the Act. The Act further provides that new requirements relating to EIR near EJ Populations apply to new projects filed with MEPA after the effective date of these regulations. St. 2021, c. 8, §§ 102A, 102B.

[36] The 2021 EJ Policy provides that Projects, such as the present one, that have filed an ENF prior to the issuance of said policy are not subject to the enhanced analysis or enhanced participation provisions of the updated policy. 2021 EJ Policy at 11 n. 3. Provisions specific to the Siting Board under the 2021 EJ Policy (i.e., Section 20, Enhanced Public Participation and Analysis of Impacts and Mitigation Under the Energy Facilities Siting Board) did not change compared to the 2017 EJ Policy. See 2021 EJ Policy at 12; 2017 EJ Policy at 11.

[37] https://www.mass.gov/doc/environmental-justice-policy6242021-update/download

HG&E explained that the Project does not exceed any environmental impact thresholds that would necessitate enhanced participation requirements or explained analysis of impacts under the Environmental Justice Policy of the EEA. In terms of language access, HG&E provided a "legend" on the envelope of all mailed notices to abutters in Spanish and translation of the Public Comment Hearing was available in Spanish. These actions were intended to ensure general consistency with the language access policies of the Commonwealth as part of HG&E's targeted, comprehensive and personalized outreach plan.

Accordingly, the Siting Board should find that the Project, and the methods used in the review of this adjudication, are consistent with the EEA's Environmental Justice Policy and the Commonwealth's Language Access Policies.

D. Resource Use and Development Policies.

1. Smart Growth/Smart Energy Policy.

The Commonwealth has established a set of "Sustainable Development Principles." Several aspects of the Project promote these principles (see, e.g., Section IV, supra; Exh. HGE-1, at 7-4 – 7-5). For example, one of the principles is to "encourage remediation and reuse of existing sites, structures and infrastructure rather than new construction in undeveloped areas." Development that is "compact" and "conserves land" by avoiding new construction in underdeveloped area is also encouraged. A related principle is to advance the revitalization of city centers by "promoting" development that is "compact" or "conserves land." Other policies seek to protect land and natural resources and advance open spaces.

The Project's use of a small portion of an existing and long-operating site enhances many of these goals. Alternative LNG facility options would require substantially more extensive construction on either undeveloped land or land that might be better employed for Holyoke revitalization. The Project's avoidance of impact to natural resources is further evidenced by the need for no other permits or approvals is also consistent with the goal of protecting sensitive

lands, natural resources or wetlands. The Siting Board found similar benefits for a pipeline project to be consistent with these principles. Lowell–Tewksbury, at 76.

Accordingly, the Siting Board should find that the Project is consistent with the Commonwealth's Sustainable Development Policies.

E. Briefing Questions.

On December 22, 2023, the Presiding Officer requested that HG&E analyze the findings of the Department in its recent Order in D.P.U. 20-80-B, namely, the Investigation into the role of local gas distribution companies as the Commonwealth achieves its target 2050 climate goals ("DPU 20-80-B Order"). Specifically, the Presiding Officer requested that HG&E address the DPU 20-80-B Order in its consideration of "current health, environmental protection and resource development policies." Also, HG&E was directed to address several specific questions.

1. Background on Investigation into LDCs.

In 2020, the Department initiated an investigation into the appropriate role of local distribution companies (LDCs") in terms of advancing the Commonwealth's climate goals.[38] The DPU 20-80-B Order is noteworthy for articulating a number of principles or objectives intended to guide the natural gas industry's continuation to meeting climate goals. HG&E respectfully submits that, while the Order may not be applicable as HG&E is a municipal entity, HG&E's overall system planning approach and proposal to construct and operate the Project fully advance the policy objectives stated by the Department.

As an initial matter, the Department noted that movement on our clean energy goals should proceed while "simultaneously safeguarding," among other things, "ratepayer interests and maintaining affordability for customers," "ensuring safe, reliable, and cost-effective natural gas service" and also "minimizing the burden on low- and moderate-income households." DPU

[38] Notably, the provisions of the DPU 20-80-B Order and a related Order in D.P.U. 24-15, discussed infra do not apply to a municipal gas utility such as Holyoke. HG&E is already well along in advancing the Commonwealth's and its own climate goals and its role in also providing electricity distribution service is expected to benefit Holyoke residents, as the Holyoke utility "department" advances a "whole of HG&E" approach.

20-80-B Order, at 1-2 (*emphasis added*). Expert consultants participating in that proceeding developed six "regulatory design regulations," including actions such as HG&E's promotion of ASHP technologies, managing "gas embedded infrastructure investments," and to "evaluate and enable customer affordability." (id at 36). The Department did not ban gas customer expansion, but noted that it will seek to "dissuade" such expansion and modify rate design policies to advance climate goals (id at 2). Indeed, the Department concluded that it "must prioritize affordability and equity in addition to safety, security [and] reliability of service" as it seeks reductions in GHG emissions (id. at 116 (*emphasis added*)).

Subsequent to the issuance of the briefing questions, on January 4, 2024, the Department issued a Vote and Order Opening Inquiry in docket D.P.U. 24-15 to initiate an investigation into so-called "energy burden" with respect to elements of the transition described in the DPU 20-80-B Order ("Energy Burden Order"). The Energy Burden Order reaffirmed that "the effort to decarbonize building heat systems and transition away from fossil fuel based heat systems should protect all ratepayers from significant cost burdens, particularly those who are most vulnerable to those increases" (id. at 2). The Energy Burden Order confirms that HG&E's aggressive efforts appropriately consider and "prioritize" a range of mandated factors such as cost, availability of needed resources and similar matters.

HG&E is aggressively advancing climate goals, minimizing additional investment in gas infrastructure and reducing the potential for stranded cost (id at 14-15). In addition, HG&E has no plans to expand its natural gas distribution network, with the only new customer additions being targeted, along existing mains in order to pursue highly strategic efforts to displace higher emitting fuels (Exh. EFSB-N-25). Holyoke is mindful of the need to maintain reliability of service and manage rates or costs to its predominately low-income customer base. Indeed, the Project is estimated to cost only $4.4 million and is able to be deployed in the near term. Accelerated electrification is simply not achievable in the near term and, given the substantial incremental cost to HG&E customers (likely in excess of $1 billion in aggregate) (e.g., needed generation,

transmission, distribution and customer investments) will be best implemented thoughtfully, strategically and effectively as HG&E has planned. Beyond the concerns with accelerated electrification noted in Section IV, supra, HG&E remains vigilant in protecting the interests of its residents. As described in RR-EFSB-24, a significant portion of Holyoke's residents living in poverty or at near poverty levels. The Energy Need Order stated that "[r]esearchers have identified a household with an energy burden of six percent or more as having a high energy burden" (at p. 3). At current "rates" (assuming a mix of electricity and natural gas service), approximately two-thirds of HG&E's gas distribution customers have an "energy burden" below six percent, with poorest customers subject to an energy burden of 14-18% (RR-EFSB-24(S1)). This figure reflects HG&E's low rates, but does not reflect that customers with the lowest incomes will typically benefit from financial assistance programs. An analysis of the rate impact of full electrification, assuming that such option were even possible, shows that two-thirds of all customers would be subject to a high energy burden, many customers being at an income level where financial assistance opportunities are not available, with poorest customers "gross" energy burden being between 23-29% (id.). Any incremental financial assistance for the lowest income customers would need to be carried by other customers and could increase the proportion of HG&E customers with a high energy burden to 80% or more (id.). This concern has driven HG&E's resource planning.

Accordingly, because it advances clean energy goals aggressively, while ensuring reliability and equitable cost responsibility, the Project is wholly consistent with the policy statements in the DPU 20-80-B Order and the Energy Need Order. Beyond the Project's overall consistency with the findings of the DPU 20-80-B Order, HG&E's responses to the specific briefing questions are addressed below.

2. Impact of Project on Progress Toward Electrified and Decarbonized Technologies.

The Presiding Officer requested that HG&E address whether the Project, which necessarily stores a fossil fuel, would "support or retard" progress toward electrification. HG&E submits that, on balance, the Project will advance HG&E's efforts toward implementing transition. The Project is needed for reliability and safety, but also the least-cost alternative. By maintaining economic service for its customers, more funding will be available for measures that will advance electrification (and fewer customers will be "burdened" with "high" energy costs). This feature will, thus, "support" planned electrification. Any other, far more expensive option implemented to provide necessary reliability would be very likely to frustrate progress on electrification due to customer inability to accept higher cost impacts.

3. Targeted Electrifications and Targeted Geothermal.

The DPU 20-80-B Order concluded that networked geothermal projects had a substantial potential to reduce GHG emissions and also expressed support for targeted electrification (id. at 2). The Presiding Officer requested that HG&E address whether the Project would be "consistent" with the promotion of "networked geothermal projects" and "targeted electrification." The Presiding Officer also requested that HG&E address the expected roles of "targeted electrification" and "networked geothermal."

HG&E explained its well-defined and aggressive long-term strategy to secure the substantial electrification, including the conversion of "heating" requirement to electricity and expanded transportation load. HG&E has already developed a distribution system build-out plan which, given its cost and scope is best undertaken over a number of years. The cost impacts to Holyoke's substantial EJ population and moderate income customers requires the prudent and thoughtful consideration of costs (RR-EFSB-24; RR-EFSB-24(S1). HG&E has undertaken substantial independent research on ASHP and has evaluated a range of industry studies (RR-EFSB-1, Att. (1)). HG&E has also "mapped" the best approach to electrification with the

assistance of the University of Massachusetts and is already actively promoting ASHP and other technologies and expects conversion rates to grow from current levels HG&E fully expects that increasing “electrification” will be a critical element to meeting Holyoke’s climate goals and making its contribution to the Commonwealth’s climate plans.

HG&E is also carefully monitoring ongoing geothermal pilot programs and retained independent experts to evaluate the role of this resource in meeting climate expectations. HG&E retained the Rocky Mountain Institute (“RMI”) to evaluate the merits of “closed source” geothermal systems, initially to serve larger, multi-family residential structures (RR-EFSB-1, Att. (1), at 12-14). RMI identified cost and logistical concerns. While geothermal resources will likely play an important long-term role, HG&E believes its better focus in the near term is on ASHP advancement.

HG&E is committed to advancing these resources where appropriate and in the manner that best serves Holyoke’s goals. HG&E fully expects both electrification and geothermal systems to make material and important contributions to achieving climate goals. To date, geothermal resources have not proven to be economical. HG&E expects to refine how best to evaluate this resource by following “pilot programs” being pursued by larger investor-owned utilities.

HG&E respectfully submits that the Project is entirely consistent with its longer term goals with respect to these resources. The Project will enable HG&E to maintain safe and reliable service during the period when these emergency resources will simply not be available at any meaningful scale. The Project will avoid stranded costs and will keep energy charges low for Holyoke residents, enabling larger investments in energy efficiency, renewable energy, electrification and geothermal resources. The Project will also ensure “equitable” cost recovery. Any other needed resource (most likely expansion of the Northampton Lateral) would be substantially more costly, would result in a large percentage of customers experiencing high of excessive energy burden and could frustrate HG&E’s ability to advance these resources.

Accordingly, to the extent necessary, the Siting Board should find that the Project will advance HG&E's ability to pursue and implement enhanced electrification and geothermal projects.

4. Stranded Investment.

The Presiding Officer requested that HG&E explain whether the Project will "result" in some level of "stranded" investment. The DPU 20-80-B Order noted the importance of the "minimization" of stranded costs and similarly noted the need to "maintain" existing natural gas infrastructure" (Order at 15). Importantly, HG&E is not expanding its distribution system (cf. Order at 14), but simply adding a needed component to "maintain" the effectiveness of the existing West Holyoke Facility, a facility with four 50-year-old LNG tanks that is expected to be needed for reliability purposes for decades. In fact, the Project will effectively manage and reduce stranded investment by enabling the strategic retirement of older LNG tanks as electrification proceeds. The planned "newer" LNG tank will most likely be the final storage facility at the West Holyoke Facility as such electrification proceeds, thus also advancing reliability and safety goals.

To the extent necessary, the Siting Board should find that the Project is a thoughtful way to minimize and reduce the potential for stranded costs while maintaining the public health and safety during the transition to electrification.

5. Non-Pipeline Alternatives Were Comprehensively Evaluated.

The Presiding Officer also requested that HG&E explain the "non-gas-pipeline" alternatives considered in the review of the merits of the Project. As discussed in Section III, supra, HG&E considered a range of alternatives to meet its identified reliability need. No traditional, new pipeline options are expected to be available. The only "pipeline" alternative considered (and rejected) was the enhancement or "looping" of the Northampton Lateral. The Northampton Lateral expansion, the Project and other LNG alternatives were the only alternatives found to be "viable."

The Northampton Lateral and alternative LNG options were rejected in large part due to cost and the substantial stranded asset risk, although construction-related impacts were also far more substantial. HG&E considered the "no-build," enhanced energy efficiency and more accelerated application of electrification and geothermal. These options were rejected for availability, cost and reliability reasons. Again, the Project does not increase the use of natural gas, it merely enables HG&E to store sufficient levels of LNG "on-site" to maintain reliable service to existing customers during peak demand periods. To the extent that the DPU 20-80-B Order included a mandate with respect to the consideration of non-gas-pipeline resource alternatives (as modified by the Energy Need Order), HG&E's comprehensive resource alternative analysis shows its substantial compliance and appropriate concerns for its residents' "energy burden."

In sum, to the extent necessary or appropriate, the Siting Board should find that HG&E appropriately considered non-gas-pipeline alternatives.

VII. CONCLUSION

For the foregoing reasons, HG&E respectfully requests that the Siting Board approve its request under G.L. c. 164, § 69J to construct and operate a new LNG storage tank at the existing West Holyoke Facility.

Respectfully Submitted,

HOLYOKE GAS & ELECTRIC DEPARTMENT

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APPENDIX A

Abbreviations

AGA	American Gas Association
Andrew-Dewar	NSTAR Electric Company d/b/a Eversource Energy, EFSB 19-03/D.P.U. 19-15 (2021)
Apremont Highway Site	an alternative Project location at Apremont Highway, near Westfield Road, in Holyoke
ASHP	air source heat pumps
ASTM	American Society for Testing and Materials
Berkshire Gas (2006)	The Berkshire Gas Company, 15 DOMSB 208; EFSB 05-1 (2006)
BTU/ft^2-hr	British thermal units per square foot per hour
CFR	Code of Federal Regulations
Columbia	Columbia Gas of Massachusetts
CMR	Code of Massachusetts Regulations
CNG	compressed natural gas
CO_2	carbon dioxide
Colonial Gas (2006)	Colonial Gas Company d/b/a KeySpan Energy Delivery New England, 15 DOMSB 269, EFSB 05-2 (2006) (Sagamore Line Reinforcement Project)
Colonial Gas (2016)	Colonial Gas Company d/b/a National Grid, EFSB 16-01 (2016) (Mid Cape Replacement Project)
Company or HG&E	Holyoke Gas & Electric Department, a municipal utility providing natural gas and electricity distribution service to the City of Holyoke and limited customers in the Town of Southampton
CWA	Clean Water Act
D.P.U. or Department	Massachusetts Department of Public Utilities
D.P.U. 20-80-B	Department of Public Utilities Order on Regulatory Principles and Framework

DOMSB	Decisions and Orders of Massachusetts Energy Facilities Siting Board
Dth	Dekatherms
Dth/d	Dekatherms per day
EEA	Massachusetts Environmental Justice Policy of the Executive Office of Energy and Environmental Affair
EFSB or Siting Board	Massachusetts Energy Facilities Siting Board
EJ	Environmental Justice
ENF	MEPA Environmental Notification Form
ESA	Endangered Species Act
Eversource	an entity owning and operating gas and electric utilities, including the entity formerly known as Columbia
°F	degrees Fahrenheit
FT	feet
GHG	greenhouse gas
G.L. c.	Massachusetts General Laws chapter
HDD	heating degree day
Holyoke	the City of Holyoke, Massachusetts
HREC	Historical Recognized Environmental Condition
IRP	New England Power Company d/b/a National Grid, 20 DOMSB 1; EFSB 12-1/ D.P.U. 12-46/ 12-47 (2014)
LAP	Language Access Policy
LDC	local distribution companies
LNG	liquefied natural gas
Lowell-Tewksbury	Colonial Gas Company d/b/a National Grid, EFSB 18-01/D.P.U. 18-30 (2019)
MassDEP	Massachusetts Department of Environmental Protection
MassDOT or DOT	Massachusetts Department of Transportation

MEPA	Massachusetts Environmental Policy Act
MMBtu	million British thermal units
MOU	Memorandum of Understanding with Columbia dated June 6, 2017
Needham- West Roxbury	NSTAR Electric Company d/b/a Eversource Energy, EFSB 16-02/D.P.U. 16-77 (2018)
Northeast Energy Center LLC	Northeast Energy Center, EFSB 18-04/D.P.U. 18-96 (2021)
NHESP	Natural Heritage and Endangered Species Program
Northampton Lateral	lateral Tennessee interstate pipeline and sole interconnection for HG&E
Notice	Notice of Adjudication and Notice of Public Comment Hearing
OSHA	U.S. Occupational Safety Hazard Administration
Petition	HG&E's Petition for Approval to Construct and Operate a New Natural Gas Storage Facility pursuant to G.L. c. 164 § 69J, filed December 7, 2022
PHMSA	Pipeline Hazardous Materials Safety Administration
Project	an additional LNG storage tank at the West Holyoke Facility
Public Comment Hearing	Public Comment Hearing held March 29, 2023
REC	Renewable Energy Certificate
RMI	Rocky Mountain Institute
Salem Cables	New England Power Company d/b/a National Grid, EFSB 13-2/D.P.U. 13-151/13-152 (2014)
Siting Board	Massachusetts Energy Facilities Siting Board
Southampton, MA	Town of Southampton, Massachusetts
Southampton Site	an alternative Project location in Southampton off of County Road
Sudbury-Hudson	NSTAR Electric Company d/b/a Eversource Energy, EFSB 17-02/D.P.U. 17-82/17-83 (2019)
Tennessee	Tennessee Gas Pipeline Company, LLC
Town of Sudbury v. EFSB	487 Mass. 737, 754-755 (2021)

Town of Winchester v. EFSB	98 Mass.App.Ct. 1101 (2020) (unpublished decision)
USEPA	U. S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
West Holyoke Facility	a LNG storage and vaporization facility owned and operated by HG&E since 1971 in western Holyoke off Mueller Road consisting of four parcels with an aggregate area of 25.65 acres
Westfield	City of Westfield
WGE	Westfield Gas & Electric
Whately LNG	The Berkshire Gas Company, 9 DOMSB 1; EFSB 99-2/D.T.E. 99-17 (1999)
Whiting Farms Road Site	an alternative Project location adjacent to 33 Whiting Farms Road in Holyoke
WPA	Massachusetts Wetlands Protection Act
2017 EJ Policy	Environmental Justice Policy of the EEA adopted in 2017
2021 EJ Policy	revised EJ Policy, consistent with the Climate Roadmap Act

COMMONWEALTH OF MASSACHUSETTS

ENERGY FACILITIES SITING BOARD

EFSB 22-07

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing documents upon all parties of record in this proceeding in accordance with the requirements of 220 CMR § 1.05(1) (Department's Rules of Practice and Procedure).

Dated at Boston, Massachusetts this 12th day of January, 2024.

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