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September 20, 2019

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Sent By Electronic Mail, Courier & RESS Electronic Filing

Ontario Energy Board
2300 Yonge Street
27th Floor
Toronto, ON M4P 1E4

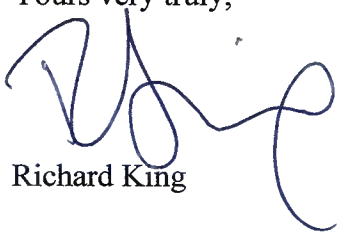
Attention: Ms Kirsten Walli
Board Secretary

Dear Sirs/Mesdames:

EPCOR Natural Gas Limited Partnership (ENGLP) – Reply Submissions
EB-2018-0336 (Phase 2)

Please find attached the Reply Submissions of ENGLP in this matter. The document has been sent to all parties in the proceeding.

Yours very truly,



Richard King

Enclosure

c: All parties to EB-2018-0336 (via email)

IN THE MATTER OF the *Ontario Energy Board Act*, 1998, S.O. 1998, c. 15, (Schedule B);

AND IN THE MATTER OF an application by EPCOR Natural Gas Limited Partnership for approval to change gas distribution rates and other charges effective January 1, 2020 to December 31, 2024.

PHASE 2 REPLY SUBMISSION

EPCOR Natural Gas Partnership LP ("ENGLP")

EB-2018-0336

September 20, 2019

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PART I -BACKGROUND

1. On January 31, 2019, EPCOR Natural Gas Limited Partnership ("ENGLP") filed its cost of service rate application in proceeding EB-2018-0336 for approval of a rate plan to set natural gas distribution rates for the period January 1, 2020 to December 31, 2024. This was the first rate case filed by ENGLP since acquiring the utility from its predecessor, Natural Resource Gas Limited ("NRG").

2. In its Decision and Interim Rate Order dated July 4, 2019 ("Decision"), the Ontario Energy Board ("Board") accepted the settlement proposal filed by ENGLP on June 10, 2019. The settlement proposal and Decision deferred the determination of a single issue – namely, the prudence of four projects completed by NRG in 2016 and 2017 to address system integrity issues. The Board scheduled Phase 2 of this proceeding to review the prudence of these projects, which were included in rate base pending completion of such review. This submission will hereinafter refer to the projects as the "Four System Integrity Projects".

3. The Four System Integrity Projects and their associated 2020 net book (rate base) values are:

a. $402,639 for the Enbridge Gas (formerly Union Gas) Bradley Station Project (the "Bradley Station" project);

b. $748,383 for the pipeline from the Bradley Station to the Wilson Line project (the "Bradley x Wilson Line" pipeline);

c. $498,922 for the pipeline from the existing Putnam Station to Culloden Line project (the "Putnam x Culloden" pipeline); and

d. $265,015 for the extension of the Springwater Road pipeline from south of Orwell to John Wise Line project (the "Springwater" pipeline).

4. ENGLP notes that parties to the settlement proposal agreed that, with the exception of the Four System Integrity Projects, the amounts closed (or proposed to be closed) to rate base since the utility's last rate proceeding in EB-2010-0018 were (or will be) prudently incurred[1] and

[1] EB-2018-0336, Settlement Proposal filed June 10, 2019, page 6.

therefore the scope of this Phase 2 proceeding is limited to a review of the utility's prudence in implementing the Four System Integrity Projects.

5. In accordance with the Decision, ENGLP filed additional evidence for this Phase 2 on August 1, 2019. That additional evidence included: (a) evidence filed with the Board in a number of previous proceedings; and (b) additional information on the distribution system and the Four System Integrity Projects setting out the circumstances and information available to NRG at the time the decisions were made to proceed with the Four System Integrity Projects.

6. ENGLP responded to written interrogatories from Ontario Energy Board Staff ("Board Staff") and the Vulnerable Energy Consumers Coalition ("VECC") on August 9, 2019. Board Staff and VECC filed submissions in this proceeding that:

- Support the recovery of the costs associated with the Bradley Station Project and the Bradley x Wilson pipeline; and

- Do not support recovery of the costs associated with the Putnam x Culloden pipeline and the Springwater pipeline in ENGLP's 2020 rates. However, whereas Board Staff supports inclusion of the Springwater pipeline in rate base commencing January 1, 2021, VECC's position is that the Springwater Pipeline should be permanently excluded from ENGLP's rate base.

7. It is ENGLP's position that the submissions of Board Staff and VECC are flawed in two fundamental ways:

- First, both are premised on the position that any capital expenditures by ENGLP in 2016 and 2017 that departed from the recommendations in the SNC-Lavalin Study[2] amounted to imprudence by NRG. This, as detailed in the record and herein below, fails to take into account the fact that subsequent to the SNC-Lavalin study, NRG was able to secure additional supply from Union Gas Limited, thereby rendering some of the recommendations no longer current/relevant in 2016 and 2017. Securing that additional supply from Union Gas impacted decision-making with respect to all Four System Integrity Projects. Indeed, it is ENGLP's position that to do as Board Staff and VECC suggest (i.e., not adjust for the changed circumstances presented by additional gas supply) would have been imprudent.

- Second, both apply the wrong test to the Board's assessment of whether to include capital projects in rate base. In ENGLP's view, this is due to a misplaced view of the Board's May 17, 2012 decision ("2012 Decision") that dealt with the need for gas supply from local wells and the pricing for such gas. Put simply, the position of Board Staff and VECC would

[2] EB-2018-0336, Application and Evidence, Exhibit 1, Tab 4, Schedule 2, Page 22-23.

> have NRG ignore critical safety issues on its system in favour of spending any and all capital dollars on an economic issue (local gas supply pricing) that the Board was addressing through price regulation. That is not what the 2012 Decision required, and to do so would have amounted to reckless conduct by NRG. The Four System Integrity Projects were implemented to solve acute system pressure issues being experienced by NRG in 2016 and 2017. It would be extraordinary for the Board to exclude necessary, prudent and beneficial capital projects from ENGLP's rate base.

8. ENGLP's submissions below discuss: (a) the parties' varying perspectives on what constitutes a recoverable capital project; (b) prior direction given by the Board in relation to the utility's purchase of locally supplied gas; and (c) the need, prudence and benefits of the of the Four System Integrity Projects and why they should be included in ENGLP's rate base.

PART II - OVERVIEW

9. NRG spent approximately $2.0 million to implement the Four System Integrity Projects in 2016 and 2017, which were aimed at addressing system integrity issues. The evidence filed by ENGLP in Phase 2 of this proceeding clearly establishes that the utility was facing urgent and serious public safety concerns caused by low system pressures in the southwest and northeast quadrants of NRG's service territory. Resolving these public safety concerns was paramount for utility. There is no evidence to suggest that the Four System Integrity Projects were not required to resolve these acute safety issues. Furthermore, the costs of the Four System Integrity Projects have not been challenged and there is no indication that the costs were unreasonable.

10. The prudence of the Bradley Station Project and Bradley x Wilson pipeline is not in dispute. However, Board Staff and VECC have filed complementary submissions which argue that recovery of costs associated with the Putnam x Culloden pipeline should be permanently denied, and the Springwater pipeline should be denied temporarily in the view of Board Staff and permanently in the view of VECC.

11. The submissions of Board Staff and VECC are premised on a misguided view of what constitutes a recoverable capital project – one that is narrowly tied to certain "system integrity" projects implemented for the primary purpose of eliminating or reducing the purchase of locally produced, premium priced gas. This approach precludes other (and in ENGLP's view, more

important) priorities such as rectifying acute low gas pressures to address public safety concerns, as well as incidental benefits like reliability and future growth.

12. Board Staff and VECC took a similar, narrow view of the "benefits" to rate payers of the Four System Integrity Projects – refusing to give any credence to reliability and future capacity, so long as customers continued to need locally produced, premium gas. The Four System Integrity Projects were not developed to replace any locally produced gas. ENGLP submits that the proper metric for evaluating the Four System Integrity Projects is whether they reasonably resolved the low pressure problems that existed.

13. Furthermore, Board Staff and VECC's submissions are premised on the notion that the Board (in its 2012 Decision) directed the utility to prioritize its short term capital expenditures towards reducing or eliminating locally produced gas ahead of any other criteria. There was no such direction.

14. In implementing the Four System Integrity Project, NRG's utility's management exercised sound judgment and prudent management in determining which projects were most needed to operate a safe, reliable, efficient, and cost-effective system. This included: (a) two projects aimed at obtaining high pressure gas supply from a Union Gas (Bradley Station Project and Bradley x Wilson Line pipeline); (b) one project aimed at moving gas supply from west to east into the Brownsville area (Putnam x Culloden pipeline); and (c) one project to gain greater benefit from the new higher pressure supply resulting from the Bradley Station Project, which facilitated getting the gas more directly into the area south of Aylmer to address the pressure issues in that area (Springwater pipeline).

15. ENGLP's evidence has established that all Four System Integrity Projects were needed, prudently implemented, and of benefit to rate payers. Further, although prudence reviews cannot employ hindsight, it is clear from the evidence that the Four System Integrity Projects did exactly what they were intended to do – namely, addressing low system pressures in crucial areas of NRG's system and resolving public safety concerns. A gas utility's first priority should always be to ensure a safe and reliable source of natural gas – and that was the motivating force behind the Four System Integrity Projects. There should be no issue as to the inclusion of the full costs of these Four System Integrity Projects in ENGLP's rate base at their associated 2020 net book values. To find otherwise, in ENGLP's submission, would set a dangerous precedent by suggesting

that a utility's capital expenditures aimed at resolving safety issues might be unrecoverable. The Supreme Court of Canada ("SCC") has recognized the seriousness of disallowing capital costs incurred by a regulated utility:

> Capital costs, particularly those pertaining to areas such as capacity expansion or upgrades to existing facilities, often entail some amount of risk, and may not always be strictly necessary to the short-term ongoing production of a utility. Nevertheless such costs may often be a wise investment in the utility's future health and viability. As such, prudence review, including a no-hindsight approach (with or without a presumption of prudence depending on the statutory scheme) **may play a particularly important role in ensuring that utilities are not discouraged from making the optimal level of investment in the development of their facilities**.[3] (emphasis added)

16. In EPCOR's view, the SCC had in mind capital costs aimed at matters far less critical than the safety related matters addressed by the Four System Integrity Projects. The SCC appears to be discussing projects aimed at future growth and system reliability. If caution is to be taken to disallowing the costs of these projects, ENGLP submits that even greater caution should be exercised by the Board in its review of projects aimed at resolving critical safety issues.

PART III - PRUDENCY REVIEW TEST AND QUESTIONS BEFORE THE BOARD

17. The Supreme Court of Canada in its September 25, 2015 decision in *Ontario (Energy Board) v. Ontario Power Generation Inc.*, 2015 SCC 44 (OPG *Decision*), stated at paragraph 102 that: "The prudent investment test, or prudence review, is a valid and widely accepted tool that regulators may use when assessing whether payments to a utility would be just and reasonable. While there exist different articulations of prudence review, *Enbridge*[4] presents one express statement of how a regulatory board might structure its review to assess the prudence of utility expenditures at the time they were incurred."

18. ENGLP submits that it would be appropriate in this instance for the Board to apply the prudent investment test as articulated by the Ontario Court of Appeal in *Enbridge v. The Ontario*

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3 *Ontario (Energy Board) v. Ontario Power Generation Inc.*, 2015 SCC 44 (OPG Decision), paragraph 107.

4 *Enbridge v. The Ontario Energy Board*, [2006] OJ No. 1335 (QL) at paragraphs 10 and 23.

Energy Board (Enbridge). Briefly, the Ontario Court of Appeal endorsed the following specific formulation of the test:

- Decisions made by the utilities' management should generally be presumed to be prudent unless challenged on reasonable grounds.
- To be prudent, a decision must have been reasonable under the circumstances that were known or ought to have been known to the utility at the time the decision was made.
- Hindsight should not be used in determining prudence, although consideration of the outcome of the decision may legitimately be used to overcome the presumption of prudence.
- Prudence must be determined in a retrospective factual inquiry, in that the evidence must be concerned with the time the decision was made and must be based on facts about the elements that could or did enter into the decision at that time.

19. Accordingly, the Board ought to assess the reasonableness of NRG's decisions to undertake the Four System Integrity Projects based on the circumstances and information available to the utility at the time the decision was made. Furthermore, after the fact evidence confirms that the very system integrity issues the Four System Integrity Projects were meant to address (extreme low pressures near Brownsville and in and around the Town of Aylmer) were in fact resolved and thereby resulted in the key intended benefit to rate payers.

20. Finally, the context in which the Four System Integrity Projects were undertaken is relevant and the Board must weigh and balance the impacts of disallowing capital costs incurred by a utility presented with severe pressure issues which had the potential to significantly influence safe and reliable services to customers. In this context, NRG's decisions to proceed with the Four System Integrity Projects were sound, and the implementation of such decisions prudent.

PART IV - BOARD STAFF AND VECC SUBMISSIONS MISCHARACTERIZE BOARD ORDER AND DECISION IN PROCEEDING EB-2010-0018

21. Submissions by Board Staff and VECC assert that the costs associated with the Putnam x Culloden pipeline and Springwater pipeline are imprudent on the basis of a misguided view of

what constitutes a recoverable capital project – restricting such recovery to "system integrity projects" aimed solely at eliminated or reduced reliance on local, premium priced natural gas:

- Board Staff asserts that the question before the Board is whether the Four System Integrity Projects provide the appropriate incremental benefits to justify the costs to the rate payer in the context of eliminating or reducing system reliance on local, premium gas.[5]

- VECC asserts the question before the Board is whether the utility appropriately prioritized competing investment needs and whether the Four System Integrity Projects could have been delayed in order to address the system integrity and natural gas premiums that the Board had identified as concerns to be addressed.[6]

22. These perspectives ignore the severe low pressures facing NRG during peak periods, and are grounded in Board Staff's and VECC's mischaracterization of the Board's 2012 Decision.[7] Board Staff and VECC are measuring the prudence of the Four System Integrity Projects in the context of a Board order or direction that was never given to NRG.

23. Board Staff's submission in this proceeding makes several references to a requirement for "reduced or eliminated reliance" on locally produced, premium priced gas, a concept that the Board makes no mention of in its 2012 Decision. The following passages are drawn from Board Staff's submissions:

> The spending on this project should have been allocated to projects that would have **reduced or eliminated reliance on locally produced premium priced gas** and diminished the market power exercised by NRG Corp.[8]
>
> The OEB therefore ordered an independent study including a market study to examine viable supply options within NRG's franchise area. In other words, the study's main objective was to **reduce the reliance on locally produced gas**.[9]
>
> However, NRG made no concerted effort to reduce the market power of NRG Corp. and **reduce reliance on locally sourced gas**.[10]

5 OEB Staff Submission – Phase 2, EB-2018-0336, page 7-8.
6 VECC Submission – Phase 2, EB-2018-0336, page 2, paragraph 1.2.
7 EB-2010-0018, Phase 2 Decision, pages 8-11.
8 ENGLP Additional Evidence, EB-2018-0336, page 3 of 31.
9 Supra, at page 7 of 31.
10 Supra.

> OEB staff has already established that NRG did not make any attempts to **reduce reliance on locally produced gas** through the implementation of its system integrity projects.[11]

24. However, NRG was never directed by the Board to reduce or eliminate reliance on premium gas from local wells nor was NRG ever directed by the Board to prioritize its capital expenditures for this purpose over all other utility priorities.

25. In its 2012 Decision, the Board concerned itself with determining the amount of system integrity gas that is appropriate for purchase by NRG, stating at page 9 that:

> The [Aecon Utility Engineering] study however did not identify the volume of gas that is required to maintain system integrity and **accordingly system integrity demand is largely theoretical at this state**…
>
> **The issue before the board is fairly complex and may require a two-step process before a long term solution emerges**. In the meantime, customers will require a reliable supply and an interim solution is required…
>
> The Board believes that the number of 2.4 million cubic meters is fairly high and **considers 1.0 million cubic meters to better represent the demand related to system integrity**. This number represents the approximate average annual demand of 5% (353) of NRG's Rate 1 customers, **an approach that is at least somewhat consonant with the information appearing in the Aecon report**. (Emphasis added)

26. Absent better information, the Board was not comfortable specifying the nature of a permanent solution or if such a solution would involve a greater or lesser volume of locally supplied gas. At page 10 of the 2012 Decision the Board States the following:

> The Board expects the [SNC-Lavalin Study and Dr. Walsh's Competitive Market Study] to look at the technical and engineering aspects of NRG's system and arrive at firm conclusions with respect to **the amount of system integrity gas** that NRG may require under different scenarios, including, but not limited to a single design day. (Emphasis added)

27. Furthermore, the Board was expressly concerned about identifying long-term options to ensure the utility had access to a safe and reliable gas supply for its customers. However, the Board

[11] Supra.

did not venture to stipulate what specific actions the utility should or should not take to address the issue. At pages 10 and 11 of the 2012 Decision, the Board states as follows:

> The Board expects the study to look at the technical and engineering aspects of NRG's system and arrive at firm conclusions with respect to the amount of system integrity gas that NRG may require under different scenarios, including but not limited to a single design day. The Board also expects the consultant to review the gas supply available within NRG's franchise area and provide an analysis on whether a competitive market can exist within NRG's franchise area and if so, the mechanics of establishing such a market. This includes identifying other potential suppliers within the area and determining if they can be a viable and reliable supply option. The study could also examine if the Union gas system could provide any cost effective solutions…
>
> Based on the recommendations of the study, the Board may order NRG to issue an RFP that would solicit alternative suppliers within the NRG franchise area…

28. Overall, the 2012 Decision went so far as to order studies which would provide additional context and information such that the Board could make informed decisions and directions to the utility in future proceedings. However, it is clear that the Board did not go as far as to expressly direct or order specific actions from the utility aimed at reducing or eliminating the purchase of locally produced gas, nor did it expressly require management to prioritize spending on capital projects for that objective. Indeed, the Board was aware that NRG's distribution pipeline system was built up around the existing local gas wells – noting that "NRG's system has expanded significantly, from essentially a gathering system for local production to a gas utility serving more than 7,000 customers."[12] Moreover, to the extent that the Board was trying to address what might be a long-term economic issue (the purchase of premium priced gas at non-arm's length), it took steps to mitigate the short term implications by capping the quantum of premium priced gas that would be recoverable from ratepayers.

29. In any event, ENGLP submits that the evidence submitted in this Phase 2 proceeding demonstrates that the utility's decision to implement the Four System Integrity Projects was very

[12] 2012 Decision, page 12.

much aligned with ensuring a safe and reliable gas supply, a clear and pressing concern of the Board in the 2012 Decision.

30. ENGLP submits that even had the Board directed the utility to reduce or eliminate reliance on the gas from these wells, for the utility to blindly follow such a direction and prioritize capital for this purpose over the need to address significant operational issues impacting the system, would have amounted to mismanagement by the utility.

PART V - THE FOUR SYSTEM INTEGRITY PROJECTS WERE PRUDENT

31. The appropriate legal framework for the Board's assessment of inclusion of the Four System Integrity Projects in ENGLP's rate base is as follows:

a. *Was there a need for the utility to invest the capital for the Four System Integrity Projects?*

b. *Was the utility prudent in its decision to implement the Four System Integrity Projects in consideration of the circumstances and the information available to NRG at the time?*

c. *Did the Four System Integrity Projects provide a benefit to its customers?*

32. It is not, as Board Staff and VECC suggest, whether they reduced NRG's need to utilize locally produced natural gas.

33. ENGLP's evidence demonstrates NRG was experiencing severe low pressure issues in the northeast and southwest quadrants of its system in 2016 and 2017. As the evidence clearly shows, it was reasonable for NRG to implement the Four System Integrity Projects in the context of: (a) the unexpected availability of new supply from Enbridge Gas (formerly Union Gas); (b) the conclusions and recommendations of the SNC-Lavalin study; and (c) NRG's obligation to ensure public safety and the provision of a safe and reliable supply of gas for its customers.

34. In order to assist the Board in its determination of prudence for the Four System Integrity Projects, the evidence is summarized below in the context of the above-noted questions.

A. Was there a need for the utility to invest capital for the Four System Integrity Projects?

35. System integrity in the context of this application, and the reason for the implementation of the Four System Integrity Projects, is the unacceptably low pressures that were occurring in the southwest and northeast portions of the NRG system during periods of high demand.

36. Prior to the implementation of the Four System Integrity Projects in 2016 and 2017, NRG was experiencing severe low pressure issues in the northeast near Brownsville, and in the southwest in and around Aylmer. These low pressure issues presented significant public safety concerns and inhibited the utility's ability to ensure the safe and reliable delivery of gas to its customers.[13] Given the robust historical growth of the system, NRG had every reason to believe this issue would persist or worsen in the future.

37. To fully understand the severity of the public safety concerns presented by such low pressure issues, as experienced by NRG prior to the implementation of the Four System Integrity Projects, the following technical understanding is required: General low-pressure conditions in a gas distribution system may result in acute low-pressure problems at any individual customer building (and may be unknown to the utility). These acute conditions can result in intermittent loss of supply to a customer's equipment. Some customers' appliances, such as certain older domestic ranges may rely on standing pilots to light the main burner. If such equipment is operating immediately prior to the loss of supply, both the pilot and the main burner will be extinguished. Since the pilot light is no longer functioning, and must be manually lit, once supply is restored, raw gas flow will resume through the main burner into the building creating a potential significant safety hazard to that customer.[14]

38. It is in the context of this urgent need to resolve NRG's general low-pressure issues in the northeast quadrant (since at least 2010) and in the southwest quadrant (since at least 2014) that NRG undertook the Four System Integrity Projects. At the time that the Four System Integrity

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[13] EB-2018-0336, Additional Evidence, page 7 of 31, paragraph 1-2, and page 8 of 31, paragraph 5.

[14] This potential safety issue is the reason that natural gas distributors will completely shut down that portion of a system that has experienced a full loss of pressure. This system shut down procedure also provides for each building to be manually shut off prior to introducing gas back into the system. The utility will then turn gas back on to each building individually to ensure that it is safe to re-introduce gas back into the building.

Projects were undertaken, NRG's primary concern was to resolve the public safety threat to its customers associated with critically low pressures at certain points in the northeast and southwest.

39. The potential loss of home heating to at-risk customers and loss of crops and death of livestock were also serious concerns, but very much secondary in comparison to the threat to life posed to NRG's customers should the acute low-pressure problems result in an intermittent loss of supply to a customer.

40. ENGLP submits that the significant public safety concerns and the utility's inhibited ability to ensure the safe and reliable delivery of gas to its customers resulting from the low pressure issues NRG experienced in the northeast near Brownsville and in the southwest in and around Aylmer presented a real and urgent need for the utility to invest in the Four System Integrity Projects or other such capital that would directly address these issues.

41. With respect to the need of each of the Four System Integrity Projects, ENGLP provides a system map at Appendix "A" for illustrative purposes.

i. There was a need to invest in the Bradley Station project and the Bradley x Wilson Line pipeline

42. The Bradley Station project and the Bradley x Wilson Line pipeline were directly related to obtaining additional, high pressure gas supply from Union Gas at Union's Bradley Station. These two projects allowed gas to be delivered into the centre of NRG's service area at higher pressure, to alleviate low system pressure concerns in the southwest area of the distribution system and address the public safety concerns outlined above.[15] Board Staff and VECC support the need for these two projects in their respective submissions.

ii. There was a need to invest in the Putnam x Culloden Pipeline

43. Board Staff submitted that the Putnam x Culloden pipeline is not a system integrity project. The extent of Board Staff's argument is that, "the pipeline improved reliability and facilitated future growth." Board Staff bases its argument on the fact that the SNC-Lavalin study did not indicate any pressure issues at Putnam Station. ENGLP agrees that there were no pressure issues

[15] ENGLP Additional Evidence, EB-2018-0336, page 4 of 31.

at Putnam Station, but notes that the Putnam x Culloden Pipeline was not constructed to resolve pressure issues at Putnam Station.

44. The Putnam x Culloden Pipeline was to address low pressure issues around the area of Brownsville as referenced in the SNC-Lavalin Study.[16] It does so by delivering gas from the Putnam Station to the area of Brownsville. An alternative option to delivering gas from Putnam station to the area of Brownsville was explored in the SNC-Lavalin study (essentially taking the other 'two sides of the square' of the distribution system) to reach the area around Brownsville. As noted in ENGLP's additional evidence, NRG chose to implement the alternative route to the one in the SNC-Lavalin study because NRG's preferred route not only resolved the pressure issues around Brownsville, but also resulted in improved system reliability and facilitated future growth not possible through implementation of the SNC-Lavalin study solution.[17]

45. Furthermore, as noted in ENGLP's response to interrogatory 1-Staff-6, the route examined by SNC-Lavalin would have created a 2" pipeline "choke point" along Wilson Line between Putnam Road and Pigram Line which NRG sought to avoid by implementing this solution.

iii. There was a need to invest in the Springwater Pipeline

46. Board Staff inexplicably argues that the Springwater pipeline should have resolved system integrity issues in the southeast and reduced the volumes of premium priced gas purchased. At no time in this proceeding or other proceedings has ENGLP or NRG indicated that any of the Four System Integrity Projects, including the Springwater pipeline would resolve system integrity issues localized to the southeast of the distribution system (i.e., where the local gas wells exist).

47. The Springwater pipeline set out to resolve severe low pressure issues which were resulting in a risk to public safety in the southwest of NRG's distribution system south of Aylmer.

B. Was the utility prudent in its decision to implement the Four System Integrity Projects in consideration of the circumstances and the information available to NRG at the time?

48. The Four System Integrity Projects were prudent in that they were the most economically viable projects based on: (a) the information known to NRG at the time they were implemented; (b) their likelihood of resolving the low system pressure issues; and (c) NRG's ability to carry out

[16] EB-2018-0336, Application and Evidence, Exhibit 1, Tab 4, Schedule 2, page 22-23.
[17] ENGLP's Additional Evidence, EB-2018-0336, page 12 of 31, paragraph 13.

construction in short order (within the 2016 and 2017 construction seasons) in advance of traditional low pressure periods in fall and winter.

49. A gas distribution system is complex in that it is impacted by many variables, all of which must be considered when evaluating options for projects impacting the system. System pressures at any point on the distribution system, for instance, are directly affected by: (a) the gas supply characteristics (locations, pressures, and quantities of gas entering the system); (b) distribution system dynamics (operating pressures, main sizes, lengths and material, regulating stations, and services); and (c) customer demands.

50. Varying customer demands and the quality of equipment installed at each customer's location can result in transient pressure effects on the system. Gas flows only result from pressure differentials in the system. Changes in gas flow do not occur instantaneously and it can take some time for an increase in natural gas demand to result in increased gas flow into the system, and then for the effects of such higher flows to reach the area of increased demand. This delay results in line pack[18] being used to meet the increased demand and this reduction in line pack causes lower pressures in the area until the increased flow replenishes the line pack in the area of increased demand and system reaches a steady state. A distribution system that operates at unacceptably low pressures has no remaining line pack available to meet an increase in demand which can lead to a localized loss of supply to one or more buildings.

51. Issues around the location of gas supply, existing system dynamics, customer demands, and line pack were driving NRG's decisions around the implementation of the Four System Integrity Projects.

52. It is important to note that NRG's distribution system is best viewed as consisting of four quadrants: northwest, northeast, southwest and southeast. This distinction is based on the distinct profile of these areas, not arbitrarily. For instance, the southwest quadrant has significant population and load centres with no locally produced gas (including the areas near and in the Town of Aylmer). The southeast quadrant (the area approximately to the east of Richmond Road, and northeast of Port Burwell) contain all sources of locally produced well gas on NRG's distribution

[18] Line packing is a technique for the short-term storage of gas within transmission and distribution pipelines to meet short-term system demands related to either a loss of upstream supply or an increase in gas demand.

system. Consequently, Board Staff's references to the "southern area" is of little use. The southeast and southwest areas of ENGLP's system are distinct in character when it comes to system pressure considerations.

53. NRG's argument-in-chief in the EB-2010-0018 proceeding, when read together with the SNC-Lavalin Study, make clear that the gas required from local wells supported system integrity in the southeast of the distribution system, and provided only incremental support to the southwest of the distribution system.

54. To this point, the SNC-Lavalin Study indicated that the local wells provided significant pressure support in the southeast of the system, and limiting production from these wells would have exacerbated pre-existing system integrity issues in the southwest, necessitating additional gas flow from Union Gas together with additional pipelines to move gas south from those stations.[19]

55. As the Board knows, such "additional gas flow" and "additional pipelines" to reinforce the southeast were not available in any economic manner to NRG in the years prior to the implementation of the Four System Integrity Projects. The results of the Aecon Utility Engineering, SNC-Lavalin, and Competitive Market studies indicate, at the time NRG undertook the Four System Integrity Projects, no economically viable options were available to NRG to provide an alternate source of gas in the southeast in order to reduce or eliminate reliance on the local wells. In the absence on another local well producer to provide the volumes to NRG, the capital options available to NRG were in the order of magnitude of at least $8 million.[20] Capital spending of this magnitude would have resulted in additional costs to the rate payer in the neighborhood of $560,000 a year[21]. Given that average historical annual premium paid for the NRG Corp. gas was $127,200 from 2013 to 2018[22], the decision to prioritize capital spending in this area would have resulted in higher cost to the customer.

56. Board Staff has noted in its submission that ENGLP has more recently allocated some of its capital budget in its utility system plan to introduce an alternate supply in the southeast area of the system with the Lakeview project and thereby eliminating the premium gas produced by the local wells at the end of the current contract term. ENGLP's decision to spend capital on the

19 EB-2018-0336, Application and Evidence, at Exhibit 1, Tab 4, Schedule 2, page 21 of 104.
20 EB-2010-0018, Phase 2 Decision, issued May 17, 2012, page 4.
21 Based on a weighted average cost of capital of 5% and a depreciation rate of 2%.
22 Refer to response to interrogatory 4-Staff-42.

Lakeview project was precipitated by the fact that the utility is only now, as shown in Appendix "A", experiencing severe low pressure issues in the southeast area of the system as a result of the significant decline in the production from the local wells over the last couple of years.[23]

57. For the purposes of this application and the inclusion of the Four System Integrity Projects in rate base, both ENGLP and NRG have repeatedly noted in evidence that the system integrity issues that NRG sought to address with the implementation of the Four System Integrity Projects were in the northeast around Brownsville and in the southwest in and around the Town of Aylmer, not in the southeast, where the premium well gas provides support.

58. At the time that NRG undertook the Four System Integrity Projects, it was not experiencing pressure issues in the southeast area of the system (i.e., near the local wells) and therefore it had no operational reason to prioritize capital spending in this area above spending to address the significant public safety concerns it was faced with in the southwest and northeast. ENGLP submits that the implementation of the Four System Integrity Projects were the appropriate options to address the urgent system pressure issues in the northeast and southwest of the system. Each of the projects are explored further in the next sections.

59. With respect to the cost of the projects, ENGLP further notes that neither Board Staff nor VECC has provided any evidence or made any suggestion that the level of costs were inappropriate or unduly costly in comparison to other projects of similar size.

i. The Bradley Station and the Bradley x Wilson Pipeline Projects were prudently implemented

60. ENGLP relies on its evidence in Phase 1 of this proceeding, and its additional evidence filed on August 1, 2019 with respect to the prudence of NRG's decision to implement this project in lieu of other potential projects.

61. ENGLP notes that both Board Staff and VECC support the projects and submitted that they were prudent expenditures by NRG. ENGLP further notes that Board Staff has accepted these projects despite the fact that these projects were not specifically explored in the SNC-Lavalin

[23] EB-2018-0336, Application and Evidence, Exhibit 4, Tab 4, Schedule 1, page 12, 14-15. "ENGLP retained GSA Energy to identify the remaining production life of NRG Corp's wells as part of its acquisition of NRG. GSA Energy's review identified the significant economic depletion in the remaining production life of NRG Corp's Wells."

report. In doing so, ENGLP submits that Board Staff has implicitly accepted that the conclusions of the SNC-Lavalin Study alone cannot be used to judge whether or not projects were of value for system integrity alone, and that management discretion and changing circumstances are factors to be considered.

ii. The Putnam x Culloden Pipeline was prudently implemented

62. As noted above, the purpose of this project was to address the severe low pressure issues in the northeast of NRG's distribution system near Brownsville. To resolve pressures in the northeast area of the franchise, two pipeline route options were considered by NRG:[24]

- South on Lewis Road to Harrietsville Road and continuing south on Whittaker Road (4"), and then east on Wilson Line (proposed 3"), south on Pigram Line (2"), east on Ostrander Line (a proposed 3" line, parallel to the existing 2" line), and south on Brownsville Line to the area around Brownsville (3").

- South from Putnam Station, east on Cromarty Drive and Salford Road (proposed 4"), briefly in a generally northeasterly direction on Pigram Line (proposed 4"), and then south on Culloden Line to Ebenezer Road (proposed 3") to the area around Brownsville.[25] This was the route option that was implemented by NRG.

63. ENGLP submits that NRG was prudent in critically examining the recommended solution presented by SNC-Lavalin Study and choosing to implement the alternative Putnam x Culloden pipeline instead, since this solution provided the added benefits to customers of improved reliability and facilitated future growth in the area. As well, NRG recognized that the option recommended by SNC-Lavalin would have created a 2" pipeline "choke point" potentially resulting in future pressure and reliability issues.

64. The option selected by NRG allowed for delivery of higher pressure gas into Brownsville by utilizing a larger pipeline diameter, along a more direct and shorter route, with fewer turns. It did not rely on incremental pressure at Putnam Station to resolve the dangerously low pressures in the region. Further, any secondary (and non-severable) benefits to resolving these pressure issues (such as facilitating future growth and improving reliability) are benefits to NRG's customers. They do not run counter to the prudence of the projects, rather, they underscore their prudence.

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[24] Refer to response to Phase 2 interrogatory 1-Staff-6.

[25] The Putnam x Culloden project as outlined and as built had its southwestern terminus at the intersection of Putnam Line and Ebenezer Road, thus eliminating a "dead end" of a pipeline coming north from the Brownsville area and terminating at Putnam Line and Ebenezer Road.

ENGLP strongly disagrees with Board Staff's argument that these important secondary benefits conferred by the project should result in exclusion of prudent capital projects. Such a determination in this proceeding would bring into question a gas distributor's ability to appropriately manage and balance capital needs of the system and its customers.

iii. The Springwater Pipeline was prudently implemented

65. The Springwater pipeline was necessary to move gas around the Town of Aylmer and into areas further south in the distribution system where pressure issues were being experienced.[26]

66. While the SNC-Lavalin Study explored this project and determined it would have little impact, it was studied as a standalone solution to the pressure issues. However, subsequent to the SNC-Lavalin Study, NRG was able to secure additional supply from Union Gas. In the context of the additional gas supply from Union Gas into the Springwater pipeline, ENGLP submits that it was prudent to move forward with this project as it allowed NRG to utilize the new higher pressure supply to address the pressure issues south of Aylmer. This provided overall greater system benefit as opposed to simply connecting the new supply from Union Gas into the existing system near Aylmer which was already operating at or near its capacity.

67. The Springwater pipeline was fed with a higher receipt pressure than what was studied in the SNC-Lavalin Study, and therefore the conclusions with respect to the usefulness of this pipeline in the SNC-Lavalin Study cannot be relied upon.

68. The record of this proceeding indicates that there was no timely alternative for additional supply into the southwest at the time that NRG undertook the Springwater pipeline, this project provided the best opportunity for the utility to get the gas into the area south of the Town of Aylmer where higher pressure gas was needed to address the system pressure issues.[27,28,29] In 2015, NRG met with alternate potential suppliers of local gas in the southern area of its system in advance of

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26 ENGLP Additional Evidence, EB-2018-0336, p.5, paragraph 6(m).

27 As shown in the maps filed in this proceeding, including Appendix "A" and Appendix "B" to this submission, there are no stations that provide supply from Union to the southwest via the southern or southwestern edges of NRG's system.

28 Refer to EB-2015-0308, Application and Evidence, Affidavit of Brian Lippold, page 3 of 19. Union Gas offered to tie to their high-pressure Tilsonburg line to North Walsingham Station, located on the eastern edge of its system in the southeast quadrant of NRG's system, at a cost exceeding $5 million.

29 Supra, Exhibit "N". At the time NRG made its implementation decisions for the Four System Integrity Projects, Union Gas did not have incremental supply available at stations feeding the northeast or southeast which would not require costly upstream reinforcement or pipeline extensions, and which could have provided needed pressure.

issuing a request for quotations ("RFQ"). The RFQ yielded no response after two follow-ups,[30] leaving NRG to conclude, at the time, that there were no additional viable producers of local well gas to provide incremental supply into the south. ENGLP does note that expression of potential supply from Tribute Resources and ON-Energy Corp, owners of wells in the south, was not communicated until spring 2017 as part of NRG's November 30, 2016 application for leave of the OEB to transfer assets to ENGLP.[31]

C. Did the Four System Integrity Projects benefit customers?

69. As noted, the Four System Integrity Projects were implemented to address severe low pressure issues in the northeast and southwest of NRG's distribution system which were presenting a safety risk to the public and the utility's customers. The Four System Integrity Projects have mitigated unplanned events on the system that can disrupt and degrade the quality of service to rate payers and can result in costly operational isolation and restoration efforts by the utility to maintain public safety. All of these improvements are a direct benefit to the utility's customers.

70. The Cornerstone Energy Services system integrity report ("2018 Cornerstone Study")[32], which reviewed the state of ENGLP's distribution system in 2018 after the Four System Integrity Projects were implemented, no longer showed severe pressure issues in the northeast areas around Brownsville and in the southwest near the Town of Aylmer where NRG had experienced low pressure.[33] While this is after-the-fact evidence it demonstrates that NRG's customers ultimately received the key intended benefit of the Four System Integrity Projects.

71. In addition, as a result of NRG's prudent consideration and planning, the following additional benefits accrued to NRG (and now ENGLP) customers: (a) greater upstream supply; (b)

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30 EB-2018-0336, Application and Evidence, Exhibit 1, Tab 1, Schedule 1, page 14-15, paragraph 37. See also letter dated July 28, 2015 in EB-2018-0336 Application and Evidence at Exhibit 1, Tab 3, Schedule 2.

31 On May 12, 2017, Tribute Resources Inc., on behalf of Tribute Resources Inc. and ON-Energy Corp filed a late intervention in the EB-2016-0351 MAADS proceeding noting that, "The Companies have the capacity to deliver significant quantities of gas to the NRG system and there is the potential that the high pressure line could be used for even greater volumes, all of which would be in the area NRG has indicated requires gas supply from NRG Corp. for system integrity support."

32 EB-2018-0336, Application and Evidence, Exhibit 2, Tab 3, Schedule 2.

33 ENGLP Additional Evidence, EB-2018-0336, p.5, paragraph 6(o).

higher available pressures at points further south on the distribution system; (c) potential for future growth and pent-up customer demand; and (d) greater reliability.

72. ENGLP provides two maps to assist with identifying the benefits of the Four System Integrity Projects. The first map, attached as Appendix "A", highlights the Four System Integrity Projects, the areas of low pressure identified in the SNC-Lavalin Study, areas of low pressure identified in the 2018 Cornerstone Study, and the relative location of those local gas wells that could provide incremental pressure for system integrity. The second map, attached as Appendix "B", highlights the benefits of the two projects scrutinized by Board Staff and VECC (the Putnam x Culloden pipeline and the Springwater pipeline projects) as well as alternative projects referred to by these parties in their submissions.

73. Referring to Appendix "A", the clear and key benefit of the projects to rate payers is that the areas of low pressure identified by the SNC-Lavalin report (marked in blue) were both targeted and eliminated through the Four System Integrity Projects (marked in pink). For clarity, the two shaded circles around Brownsville and in the southwest near and in the Town of Aylmer should overlap completely. We further note that the areas of low pressure observed in the 2018 Cornerstone Study in the southeast and the Belmont area[34] do not overlap with the areas of low pressure shown in the 2015 SNC-Lavalin Study (and that would have been known at the time the Four System Integrity Projects were implemented).

74. Board Staff and VECC specifically challenged the Putnam x Culloden pipeline and Springwater pipeline and their respective benefits to rate payers. ENGLP addresses the purpose and benefits of these projects below.

i. Putnam x Culloden pipeline

75. Referring to Appendix "B", the Putnam x Culloden pipeline benefitted the system and customers by providing a more direct route for gas to the Brownsville area through larger diameter sections of pipeline than would have been provided by the SNC-Lavalin Study alternative. The larger diameter and direct route pipeline reduced relative pressure loss, allowing for higher resulting pressure into the Brownsville area without an increase in supply pressure at Putnam

[34] With the exception of a small segment of a well producing area in the vicinity of the Nova Scotia Line in the southeast.

Station. In addition to the Putnam x Culloden pipeline resulting in a material improvement to operating pressure, rate payers also benefited from the improved reliability resulting from "closing of the loop" where the system previously had a dead end on NRG's system at Ebenezer Road.

76. ENGLP submits that the pipeline also provided the *potential* benefit of being able to accommodate future growth, but that is a secondary benefit.

77. Implementation of an alternative that eliminates the low pressure issue, while enabling connection of additional customers is a benefit to rate payers. Existing rate payers benefit from a spreading of fixed costs across a greater number of customers, and these existing rate payers are protected from cross-subsidization through the Board's processes with respect to system expansion, including the requirement for prescribed capital contributions, where necessary.

78. ENGLP submits that the secondary benefits are well-defined, must be considered, and provide benefits to rate payers that incrementally outweigh the relative costs of those added benefits. The primary benefit of the resolution of the low pressure system integrity issue in the northeast was achieved, and ENGLP submits that NRG effectively exercised management discretion to ensure that the greatest benefits would accrue to its rate payers both in the short-term, with due regard for the long-term management of the distribution system.

ii. Springwater pipeline

79. The blue arrow and blue circle in Appendix "B" highlight that the Springwater pipeline was intended to fully realize the benefit of higher pressure supplies from the distant Bradley Station. It did so by restoring safer operating pressures to the area south of the Aylmer. On their own, the Bradley Station and Bradley x Wilson pipeline would not have been sufficient to address low pressures south of Aylmer, because gas entering Aylmer is regulated down to 30 psig by design at the town limit (so gas does not flow through Aylmer). To effectively provide pressure support to customers south of Aylmer, it was necessary to construct a large diameter pipeline to "bypass" the Town of Aylmer. The 3.5 km Springwater pipeline was this pipeline. Its intent was to deliver the new, higher pressure gas supplied into the 4" Conservation Line and 4" John Wise Line pipelines. The 2018 Cornerstone Study modeled pressures in the area south of Aylmer exceeded 60 psi on a base case peak day scenario (modeling January 5, 2018).[35] The Springwater

[35] EB-2018-0336, Application and Evidence, Exhibit 2, Tab 3, Schedule 2, page 24.

pipeline now brings safe, reliable service (comparable to that in other areas of ENGLP's system) to customers in the communities south of Aylmer.

80. Board Staff's submission acknowledged that the Springwater pipeline was required.[36] As with the Putnam x Culloden pipeline, Board Staff's submissions for the exclusion of costs from rate base are premised on arguments with respect to benefits associated with the reduction or elimination of premium gas. This argument fails to recognize the tangible and significant benefits to customers arising from the significant low pressure issues resolved through the pipeline and its associated secondary benefits.

81. VECC's submission acknowledged that the Springwater pipeline is a used and useful part of the utility's assets to service customers.[37] ENGLP submits that VECC has accepted that the rate payers see a benefit.

PART VI -OTHER MATTERS

A. Board Approvals of Premium Price for Local Gas

82. Board Staff and VECC have made conclusions and recommendations in this proceeding related to the utility's gas supply plan and premium local gas which attempt to revisit settled issues relating to the quantum and pricing of locally produced gas. As these matters have already been approved by the Board in a MAAD application and ongoing QRAM decisions, they should not be revisited in a collateral manner in this proceeding.

83. In Phase 1 of this proceeding, the parties reached a full settlement on all issues with the only item carried forward to this Phase 2 being the prudence of the Four System Integrity Projects. We note that in Phase 1 of this proceeding, ENGLP requested approval to recover $8.486 per mcf for one million cubic meters until the end of the current gas purchase agreement that expires on September 30, 2020. This gas purchase agreement was approved in ENGLP's MAADs application and the ENGLP's proposal to continue buying gas in accordance with the terms of the purchase agreement was approved as part of the settlement proposal in this proceeding. Nevertheless, arguments made by VECC seek to "impute an adjustment to rate base…to compensate ratepayers

[36] OEB Staff Submission – Phase 2, EB-2018-0336, page 3, paragraph 2
[37] VECC Submission, page 2 of 4, paragraph 1.2

for the extra costs of gas."[38] This proposal runs contrary to the above-noted approvals granted by the Board and are inappropriate.

84. Furthermore, arguments made by Board Staff conclude that the timing of the inclusion of the Putnam x Culloden pipeline and Springwater pipeline in rate base should align with the utility's proposed elimination of premium pricing for locally sourced gas[39]. This proposal would penalize the utility for its approved gas supply plan and QRAM-approved prices associated with local well gas, regardless of the acknowledged benefits and outcomes of the Four System Integrity projects. For obvious reasons, the Board should disregard this argument of Board Staff.

B. Sufficiency of Evidence

85. At points in their submissions, Board Staff (and particularly VECC) suggest that ENGLP failed to definitively answer certain interrogatories. ENGLP provided substantial amounts of evidence, including detailed technical information, background and visual aids, to assist the parties in understanding the purpose and implementation of the Four System Integrity Projects. In the very few instances where ENGLP was unable to provide a definitive answer (e.g., former management's views of a Board decision, such as 1 Staff 4(a) and (d)), ENGLP shared with parties the best information that was documented and available. At the time of ENGLP's purchase of the gas distribution system, NRG had two individuals responsible for operations management. One has since resigned and one has been on disability leave for the past year, and as such neither were available to ENGLP during this proceeding. In cases where ENGLP could not confirm its understanding on a first-hand basis, ENGLP did not engage in speculation. However, there is ample documentation regarding the system's pressure issues (dating back to EB-2010-0018 and the various studies completed by Aecon, SNC-Lavalin and Cornerstone). ENGLP is of the view that there is ample evidence on the record to support the Four System Integrity Projects, and no

[38] VECC Submission – Phase 2, EB-2018-0336, page 3, paragraph 2.0, and paragraph 2.1 (first instance of 2.1).
[39] OEB Staff Submission – Phase 2, EB-2018-0336, page 11

evidence on the record to suggest they were unnecessary, imprudently implemented, or deficient in rate payer benefits.

PART VII - CONCLUSION

86. The Four System Integrity Projects were needed to ensure that the utility could provide safe and reliable service, were prudently incurred, and provided a demonstrable benefit to rate payers. Accordingly, the capital costs associated with such projects should remain in rate base without adjustment.

87. It is inconceivable to ENGLP that projects that effectively address significant low system pressures and eliminate a public safety concern, would be excluded from rate base. We respectfully submit that a utility should have comfort that it can manage its utility with a view to making timely and appropriate investments to ensure the safe operation of its distribution system and to mitigate interruptions to non-interruptible customers.

ALL OF WHICH IS RESPECTFULLY SUBMITTED

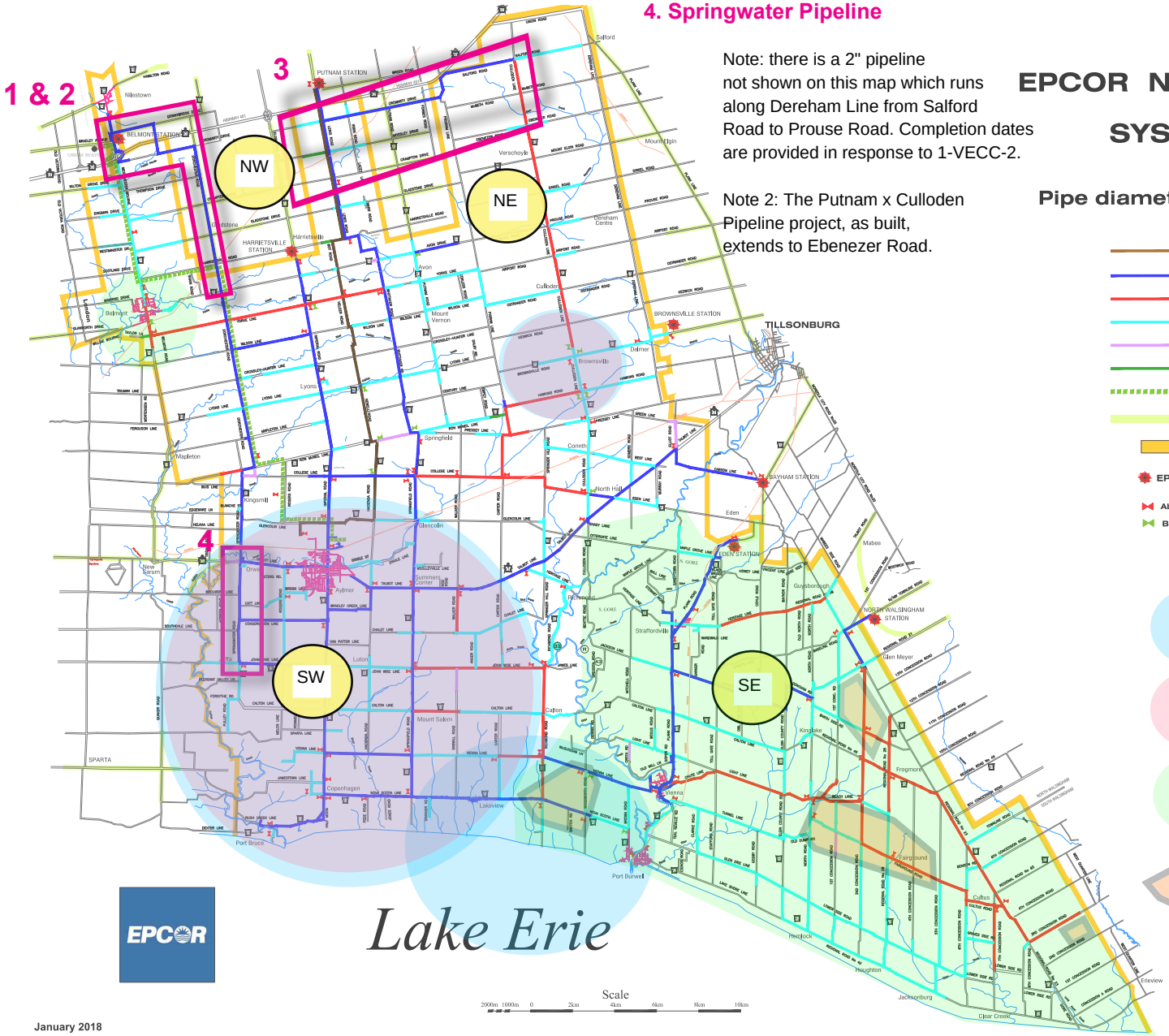
September 20, 2019

EPCOR Natural Gas Limited Partnership
by its counsel, Osler, Hoskin & Harcourt LLP
Per: Richard J. King

The Four System Integrity Projects:
1. Bradley Station Project
2. Bradley x Wilson Line Pipeline
3. Putnam x Culloden Pipeline (Note 2)
4. Springwater Pipeline

Note: there is a 2" pipeline not shown on this map which runs along Dereham Line from Salford Road to Prouse Road. Completion dates are provided in response to 1-VECC-2.

Note 2: The Putnam x Culloden Pipeline project, as built, extends to Ebenezer Road.



EPCOR NATURAL GAS SYSTEM MAP

Pipe diameters and wells locations

- Service (pipe) 6" Diameter
- Service (pipe) 4" Diameter
- Service (pipe) 3" Diameter
- Service (pipe) 2" Diameter
- Service (pipe) 1.25" Diameter
- Service (pipe) 1.00" Diameter
- DEDICATED 6" LINE - IGPC
- UNION GAS
- EPCOR FRANCHISE.
- EPCOR / UNION GAS STATIONS
- Above Ground Shut off Valves
- Bellow Ground Shut off Valves

Areas of low pressure identified by 2015 SNC-Lavalin Study

Areas of low pressure intended to be addressed by Four System Integrity Projects

Approximate area of low pressure identified by 2018 Cornerstone Study

Locations of NRG corp wells

EPCOR

January 2018

Filed: 2019-09-20
EB-2018-0336
EPCOR Natural Gas LP
Phase 2 Reply Submission
Appendix "B"

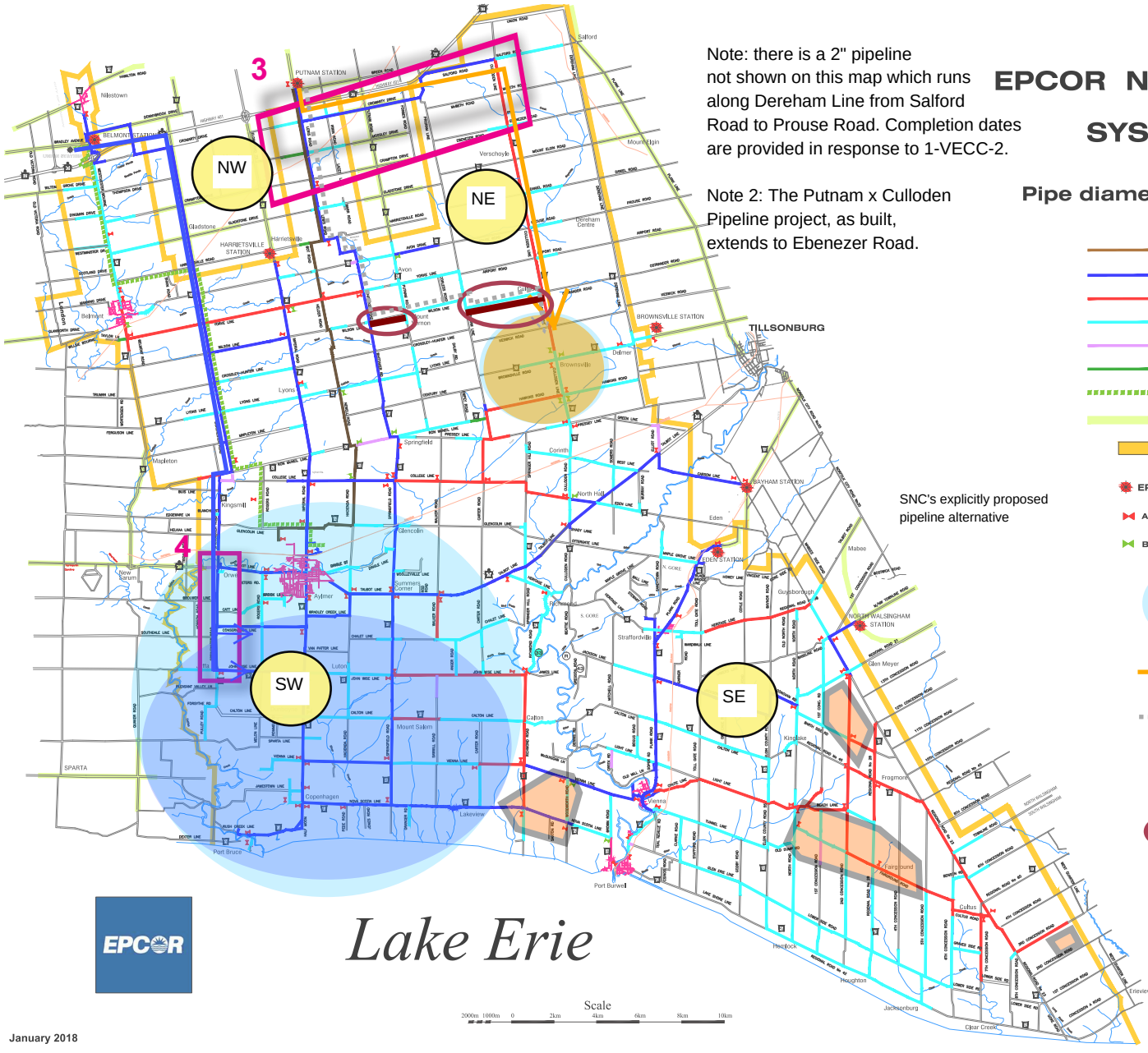
Opposed System Integrity Projects:

3. **Putnam x Culloden Pipeline (Note 2)**
4. **Springwater Pipeline**

Note: there is a 2" pipeline not shown on this map which runs along Dereham Line from Salford Road to Prouse Road. Completion dates are provided in response to 1-VECC-2.

Note 2: The Putnam x Culloden Pipeline project, as built, extends to Ebenezer Road.

EPCOR NATURAL GAS SYSTEM MAP



SNC's explicitly proposed pipeline alternative

Pipe diameters and wells locations

- Service (pipe) 6" Diameter
- Service (pipe) 4" Diameter
- Service (pipe) 3" Diameter
- Service (pipe) 2" Diameter
- Service (pipe) 1.25" Diameter
- Service (pipe) 1.00" Diameter
- DEDICATED 6" LINE - IGPC
- UNION GAS
- EPCOR FRANCHISE.
- EPCOR / UNION GAS STATIONS
- Above Ground Shut off Valves
- Bellow Ground Shut off Valves
- Areas of low pressure identified by the 2015 SNC-Lavalin Study
- Flow of gas (from source of supply) into area of low pressure utilizing Putnam x Culloden Pipeline
- Flow of gas (from source of supply) into areas of low pressure utilizing SNC's studied alternative
- Areas of low pressure addressed in Northeast by Putnam x Culloden Pipeline
- Denotes new sections of pipeline required under SNC alternative to Putnam x Culloden Pipeline
- Flow of gas (from source of supply) into areas of low pressure utilizing Springwater Pipeline
- Areas of low pressure addressed in Southwest by Springwater Pipeline
- Locations of NRG corp wells

EPCOR

January 2018