Haris Ginis
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Leave to Construct Applications
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Enbridge Gas Inc.
500 Consumers Rd.
North York, ON M1K 5E3
Canada

October 19, 2022

VIA EMAIL and RESS

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

Dear Nancy Marconi:

Re: Enbridge Gas Inc. ("Enbridge Gas")
Ontario Energy Board ("OEB") File: EB-2022-0157
Panhandle Regional Expansion Project
Technical Conference Undertaking Responses and Transcript Corrections

Consistent with the OEB's Procedural Order No. 2, enclosed are Enbridge Gas's responses to undertakings received during the Technical Conference in the above noted proceeding held October 6 and 7, 2022. Enbridge Gas has also reviewed the transcripts and notes the enclosed corrections.

During the development of undertaking responses, Enbridge Gas identified an error in the general service demand forecast. The error is not material as the correction of the error would result in an increase of less than 0.5% to the 5-year total system demand forecast. The error does not impact the proposed Project's need, timing, or design, and therefore a correction has not been made.

In accordance with the OEB's *Practice Direction on Confidential Filings*, Enbridge Gas is requesting confidential treatment of the following exhibits. Details of the specific information and reasons for confidential treatment are set out below.

Exhibit	Description of Document	Confidential Information Location	Brief Description	Basis for Confidentiality
Exhibit JT1.21	Undertaking response to JT1.21	Page 2 of 2	Commercially Sensitive Information	The redactions relate to information that is commercially sensitive, considered to be Presumptively Confidential, and consists of financial and/or commercial material that Enbridge Gas has

				consistently treated as confidential. Disclosure of this information could prejudice competitive positions and/or interfere with ongoing negotiations.
Exhibit JT1.23	Undertaking response to JT1.23	Page 2 of 2	Commercially Sensitive Information	The redactions relate to information that is commercially sensitive, considered to be Presumptively Confidential, and consists of financial and/or commercial material that Enbridge Gas has consistently treated as confidential. Disclosure of this information could prejudice competitive positions and/or interfere with ongoing negotiations.
Exhibit JT1.33	Undertaking response to JT1.33	Page 2 of 2	Commercially Sensitive Information	The redactions relate to information that is commercially sensitive, considered to be Presumptively Confidential, and consists of financial and/or commercial material that Enbridge Gas has consistently treated as confidential. Disclosure of this information could prejudice competitive positions and/or interfere with ongoing negotiations.
Exhibit JT2.1	Undertaking response to JT2.1	Page 2 of 2	Commercially Sensitive Information	The redactions relate to information that is commercially

				sensitive, considered to be Presumptively Confidential, and consists of financial and/or commercial material that Enbridge Gas has consistently treated as confidential. Disclosure of this information could prejudice competitive positions and/or interfere with ongoing negotiations.

The unredacted confidential exhibits will be sent separately via email to the OEB.

If you have any questions, please contact the undersigned.

Yours truly,

(Original Digitally Signed)

Haris Ginis
Technical Manager - Leave to Construct Applications

c.c. Charles Keizer (Torys)
Zora Cronojacki (OEB Staff)
Intervenors (EB-2022-0157)

REFERENCE	**AS STATED**	**CORRECTION**
DAY 1		
Page 33, line 1	located at Ojibway. Spruce Wood Station, ADM Agricogem and	located at Ojibway. Spruce Wood Station, ADM ~~Agricogem~~ **Agri Cogen** and
Page 81, line 15.	In this hydrocarbon alternative where we	In this ~~hydrocarbon~~ **hybrid** alternative where we
Page 128, line 7	percentage of the 2021 emissions reductions, this is a 0.6	percentage of the 2021 emissions ~~reductions~~, this is a 0.6
Page 155, line 12-14	and none of the greenhouse growers that we work with have indicated to us they're aware of this technology, but that this is something that they plan on or interested in transitioning to.	and none of the greenhouse growers that we work with have indicated to us [**pause**] ~~they're~~ **they are** aware of this technology, but that this is **not** something that they plan on or interested in transitioning to.
DAY 2		
Page 11, line 21-22	Enbridge Gas. We don't have a contractual right to obligate them as part of that T1 service.	Enbridge Gas. We don't have a contractual right to obligate them as part of that ~~T1~~ **C1** service.
Page 53, line 2	MS. THOMPSON: Rich Szymanski, Enbridge Gas.	~~MS. THOMPSON~~: **MR. SZYMANSKI:** Rich Szymanski, Enbridge Gas.
Page 73, line 28	serves Essex County. It certificates Chatham-Kent.	serves Essex County. It ~~certificates~~ **serves** Chatham-Kent.
Page 78, line 19	we can't -- archeology, soy bean system --	we can't -- archeology, soy bean ~~system~~ **cyst** --
Page 106, line 16	and whether a grave stand hard pad is required	and whether a grave**l** ~~stand hard~~ pad is required

ENBRIDGE GAS INC.

Undertaking Response to EP

To consider a response to Mr. Ladany's inquiry about conditions precedent to the contract and to respond as EGI is able; if EGI cannot, to explain why not.

Response:

The conditions precedent set out within the Brighton Beach Generation Station distribution contract that apply in the case that the OEB does not approve the proposed Project can be found at Section 2.01 of the T2 Contract template provided at Exhibit I.PP.5 Attachment 1, p. 52.

There are no additional conditions precedent that apply in the case that the OEB does not approve the proposed Project.

ENBRIDGE GAS INC.

Undertaking Response to PP

To provide EGI's definitions for transmission line and distribution line

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Response:

Consistent with the definition set out within the OEB's Natural Gas Facilities Handbook,[1] Enbridge Gas generally defines transmission pipelines as those pipelines where no distribution customers are directly connected.

Enbridge Gas defines distribution pipelines as those pipelines in a gas distribution system that convey gas to individual (customer) service lines or other distribution lines.

[1] EB-2022-0081, OEB Natural Gas Facilities Handbook, pp. 27-28

ENBRIDGE GAS INC.

Undertaking Response to IGUA

Enbridge to explain why it did not make a proposal to enable seeking of a contribution for the capacity sought.

Response:

The proposed Project is a transmission project (please also see the response at Exhibit JT1.2 for Enbridge Gas's definitions of transmission and distribution pipelines) that will increase capacity on the Panhandle System to meet forecast demand within a large area of benefit.[1] While the demand underpinning the need for the proposed Project is informed by customer demand throughout the area of benefit, there will be no customers directly connecting to the proposed Project (Panhandle Loop and Leamington Interconnect).

Distribution projects, in comparison, generally provide customer premises with direct access to natural gas. In the case of distribution projects, it can be appropriate to seek a financial contribution from customers whose premises will be directly benefiting from the project. These financial contributions can minimize cross-subsidisation by customers who will not benefit from the distribution facilities.

It is not appropriate to seek a financial contribution from specific customers for the proposed transmission Project because, as a transmission system, the Panhandle System transports natural gas for the benefit of all customers within the Panhandle Market – rather than individual or specific customers. Once in service, the proposed Project will serve all customers, whether or not they participated in the expression of interest. The proposed Project addresses system bottlenecks, which once relieved, will improve the reliability of service for existing customers, and will allow for growth from existing and new customers.

It should be noted that the Company's approach is consistent with previous Enbridge Gas applications to the OEB seeking leave to construct, including the Kingsville Transmission Reinforcement Project ("KTRP") (EB-2018-0013). Within the OEB's Decision in the KTRP leave to construct proceeding, the OEB found that the Company "appropriately followed the OEB's E.B.O. 134 test for transmission projects" and confirmed that "currently there is no mechanism to have these parties make a contribution to the costs."[2]

[1] Exhibit B, Tab 1, Schedule 1, p. 5, Figure 1
[2] EB-2018-0013, OEB Decision and Order (September 20, 2018), pp. 5-6

The Company's approach is also in alignment with the OEB's Decision (less than two years ago) on Enbridge Gas's Application for Approval of a System Expansion Surcharge ("SES"), a Temporary Connection Surcharge ("TCS"), and an Hourly Allocation Factor ("HAF"), specifically:

> "The OEB approves the use of HAF for projects that are primarily distribution and if there is a minor component of transmission then the OEB would still accept the use of HAF. For exclusively transmission projects, the OEB has not agreed to the application of HAF."[3]

[3] EB-2020-0094, OEB Decision and Order (November 5, 2020), p. 20

ENBRIDGE GAS INC.

Undertaking Response to OGVG

To reproduce Exhibit E, Tab 1, Schedule 4 just showing the distribution margin, on a best-efforts basis.

Response:

Please see Attachment 1.

Calculation of Revenue (Distribution Margins)

PREP - Panhandle Regional Expansion Project
InService Date: Nov-01-2023

Line	Project Year ($000's)		1	2	3	4	5	6	7	8	9	10
	Distribution costs are recovered from Contract rate classes based on Firm Contract Demand (CD)											
	The deemed incremental revenue is based on the capacity created by the Project											
	Contract Methodology: Total CD * 12 * Distribution Margin											
1	Distribution Margin $/M3 / month	0.092084										
2	Contract Demand 10^3m^3/month		752	2,852	3,485	4,117	4,750	4,998	4,998	4,998	4,998	4,998
3	Distribution Margin		$831	$3,151	$3,850	$4,550	$5,249	$5,523	$5,523	$5,523	$5,523	$5,523
	General Service Distribution Margin = Volumes * Distribution Margin											
4	Distribution Margin $ / M3 consumed	0.108525										
5	Volume 10 ^3 M^3		2,026	6,070	10,111	14,153	18,194	22,236	24,253	24,253	24,253	24,253
6	Distribution Margin		$220	$659	$1,097	$1,536	$1,975	$2,413	$2,632	$2,632	$2,632	$2,632
7	Total Distribution Margin		$1,051	$3,810	$4,948	$6,086	$7,224	$7,936	$8,155	$8,155	$8,155	$8,155

The Distributions margins are Jan 2022 rates

ENBRIDGE GAS INC.

Undertaking Response to OGVG

To provide a high-level estimate of the cost of distribution-related infrastructure Enbridge believes will be necessary in order to connect customers, connected to the transmission project, on a best-efforts basis.

Response:

At this time, and subject to the timing and location of where future customers are connecting to the natural gas distribution network, Enbridge Gas estimates (at a high-level and on a best-efforts basis) potentially $21 million of additional future distribution infrastructure costs related to the incremental capacity provided by the proposed Project. Further amounts are not known at this time.

ENBRIDGE GAS INC.

Undertaking Response to TFG

To file the Enbridge indigenous peoples policy and the indigenous reconciliation action plan.

Response:

Enbridge Inc.'s Indigenous Peoples Policy can be found at Exhibit H, Tab 1, Schedule 1, Attachment 5.

Enbridge's Indigenous Reconciliation Action Plan ("IRAP") can be found at: https://www.enbridge.com/irap. Enbridge's IRAP was released on September 20, 2022. It was developed in recognition of the Truth and Reconciliation Commission of Canada's Call to Action #92,[1] the United Nations Declaration on the Rights of Indigenous Peoples ("UNDRIP"), and with respect for and acknowledgement of Indigenous rights and title, treaties, and sovereignty. Enbridge's IRAP builds on the enterprise-wide progress reported in the Continuing our Path to Reconciliation update report (February 2022),[2] an Indigenous discussion paper (June 2018) and Enbridge's annual sustainability reports from 2018 to 2021.

[1] https://www.rcaanc-cirnac.gc.ca/eng/1524506030545/1557513309443
[2] https://www.enbridge.com/~/link.aspx?_id=631DB901D00944E0BBFFC24CD7B20301&_z=z

ENBRIDGE GAS INC.

Undertaking Response to TFG

To provide the current percentage blend for RNG.

Response:

In 2021, Ontario RNG producers injected 6,391 10^3m^3 of RNG into Enbridge Gas's system. The total annual throughput for 2021 was 25,304,590 10^3m^3 of natural gas, therefore, RNG represents 0.025% of throughput in Enbridge Gas's system.

In 2022, Enbridge Gas has purchased and delivered 1,000 GJ (25,750 m^3) of RNG to satisfy demand from its Opt-Up program. With an assumed annual throughput of 25,000,000 10^3m^3 of natural gas delivered in 2022, the RNG blend percentage based on the Opt-Up program specifically will be approximately 0.0001%.

ENBRIDGE GAS INC.

Undertaking Response to TFG

To provide current information for an equivalent number for the entire system percentage blend of hydrogen

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Response:

The Low Carbon Energy Project (EB-2019-0294) began delivering hydrogen into Enbridge Gas's distribution system on October 1, 2021. Between October 1, 2021, and September 31, 2022, 101,500 m^3 (1,289 GJ) of hydrogen was injected. With an assumed annual throughput of 25,000,000 10^3m^3 of natural gas, hydrogen represents 0.0004% of gas in Enbridge Gas's system.

ENBRIDGE GAS INC.

Undertaking Response to TFG

To advise the differences that pass a de minimus standard.

Response:

Renewable natural gas ("RNG") injected into Enbridge Gas's distribution system must meet pipeline gas quality standards and therefore there is no difference in the Company's integrity measures for RNG.

ENBRIDGE GAS INC.

Undertaking Response to TFG

To file internal documents that provide an overview either of the indigenous supply chain management program or the intended benefits to indigenous economies in general.

Response:

As indicated by Ms. Pennington during the technical conference, Enbridge Gas is providing the information that is publicly available regarding the socio-economic requirements of contractors.[1]

An overview of the Company's approach to Indigenous economic engagement can be found on the Enbridge Inc. website at the following link: https://www.enbridge.com/about-us/our-values/indigenous-communities/indigenous-economic-engagement

Specifically, in 2017, Enbridge Inc. introduced the Socio-Economic Requirements of Contractors ("SERC") process. The SERC guides Enbridge Inc. contractors on how the Company expects them to include Indigenous businesses in the execution of their work, as well as efforts to increase the use of Indigenous businesses as general contractors working directly for Enbridge Inc. A fact sheet about the SERC can be found at Attachment 1 to this response.

[1] Technical Conference, Day 1 Transcript, p. 115

SUPPLY CHAIN MANAGEMENT AND INDIGENOUS INCLUSION

Socio-Economic Requirements of Contractors

Enbridge has implemented an Indigenous Peoples Policy which directs the company's methods to develop mutually beneficial relations with Indigenous communities close to, or potentially affected by, Enbridge operations.

To support the Indigenous Peoples Policy, Enbridge has committed to a series of socio-economic requirements that all contractors must follow (SERC). These activities will support existing relationships and mutually beneficial partnerships with Indigenous communities in all of Enbridge's Major Projects and Operations. Additionally, it will provide economic participation of Indigenous owned businesses and community members. These commitments are a **shared responsibility involving employees, contractors and affiliates**.

The Policy

- Promotes the understanding of, and sensitivity to, Indigenous peoples and the issues that are important to them;
- Is designed to ensure a consistent, thorough approach to consultation and engagement with Indigenous groups; and
- Commits to working with Indigenous people to achieve benefits resulting from Enbridge's projects and operations, including opportunities in **training**, **education**, **employment** and **community economic development**.

Requirements of a Socio-Economic Plan (SEP)

When bidding on major project work with Enbridge, all potential contractors must develop a SEP. This includes:

- Collection of information about the Indigenous businesses the contractor intends to use on the project and the relationship the contractor has with those businesses;
- Any commitments the contractor has made in the proposal to Indigenous owned businesses (supplier or subcontractor);
- If an Indigenous business was considered but not chosen, reasons why the decision was made;
- Estimate of the value of businesses or service opportunities dedicated to Indigenous or local businesses;
- Information about Indigenous workers, such as:
  - Plans to train Indigenous members within the contractor's organization; and,
  - Estimate of total workforce to be recruited from Indigenous or local communities for the project.

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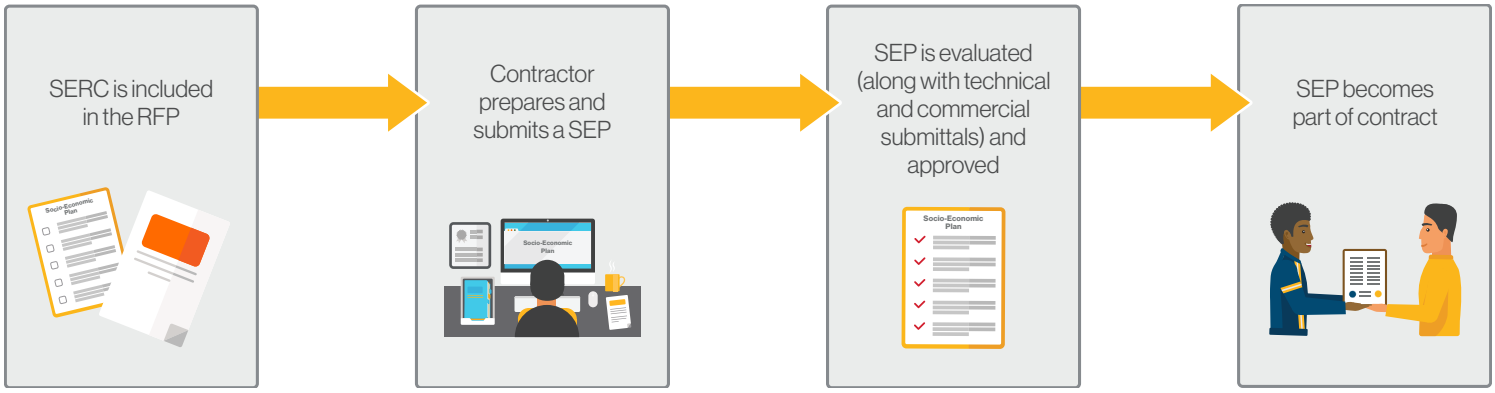
For more information, visit **enbridge.com** and search **Indigenous Peoples Policy**



How a Socio-Economic Plan is Evaluated

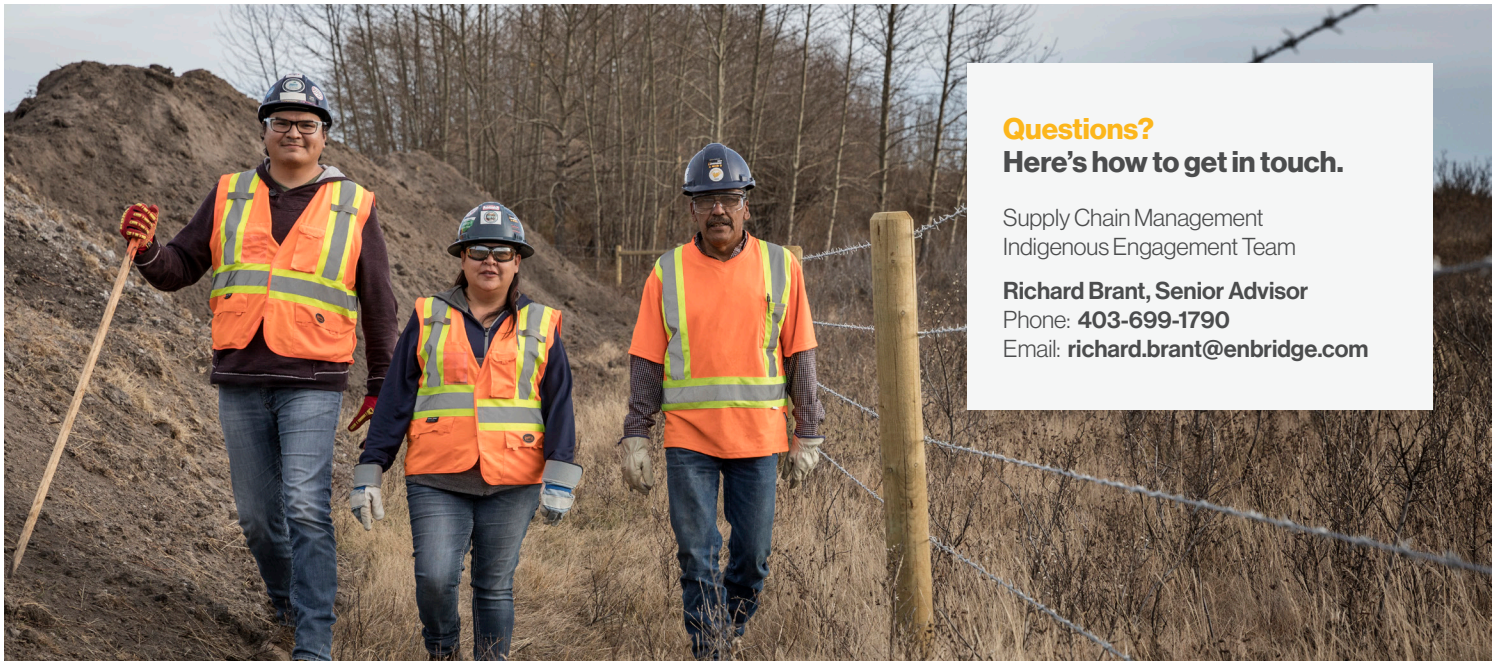
- Clear understanding of the company's socio-economic requirements and how these contribute to the success of the project;
- Quality and quantity of subcontracting opportunities provided to Indigenous owned businesses;
- Anticipated percentage of Indigenous hired workers;
- Education, training and other skill development initiatives directed at Indigenous workers, implemented or planned; and
- Creative and innovative approaches to supporting successful socio-economic outcomes.

Becoming an Enbridge Direct Contractor

As an Indigenous business in proximity to an Enbridge work opportunity, we will work with you to ensure you have opportunities to compete for work as either an Enbridge direct-award contractor or as a subcontractor to one of our general contractors. To be awarded a direct contract to Enbridge, the business will first need to pre-qualify for the type of work it wishes to perform. After a preliminary assessment by Enbridge's Supply Chain Management Team, a candidate may enter the pre-qualification process. Once successfully pre-qualified, the business will be placed on suitable work opportunity competitive bid lists.

Pre-qualifying with Enbridge means your business is aligned with Enbridge's commitment to execute construction and maintenance projects with the highest standards in safety, environmental protection, community engagement and governance. Enbridge's prequalification process involves a quality and technical review and, if necessary, an on-site audit of your business's practices and procedures. It also requires that you register your business and have your safety program and safety records reviewed and verified by ISNetworld (ISN), a global resource that certifies suppliers as safe and reliable.

Though pre-qualification with Enbridge does not guarantee work, it does mean that the business is qualified to be invited to bid on Enbridge work as a potential Enbridge direct contractor.



Questions?
Here's how to get in touch.

Supply Chain Management
Indigenous Engagement Team

Richard Brant, Senior Advisor
Phone: **403-699-1790**
Email: **richard.brant@enbridge.com**

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For more information, visit **enbridge.com**
and search **Indigenous Peoples Policy**

ENBRIDGE GAS INC.

Undertaking Response to TFG

Re: TFG 6b, (a) to advise whether there was a retainer letter, or RFP equivalent; (b) to consider privilege issues with counsel; (c) to produce such documents, barring any concerns; to advise what the concerns are.

Response:

Enbridge Gas's instructions to its consultant who completed the environmental work in relation to the project are contained in the Request for Quote ("RFQ") provided at Attachment 1 of this response. AECOM Canada was awarded the work in accordance with its Master Service Agreement with the Company and was issued a Service Release Order confirming the scope of work as per the RFQ.

REQUEST FOR QUOTATION

Environmental, Cumulative Effects, Stage I & II Archaeological Assessment, Cultural Heritage Assessment and Species at Risk

Panhandle Regional Expansion Project
Enbridge Gas Inc. ("Enbridge" or "EGI")
July 5, 2021

RFQ Instructions and Terms and Conditions

1. Not a Tender. This Request for Quotation (the "**RFQ**") is solely for Enbridge's information and planning purposes and does not constitute a tender process or solicitation or any offer or commitment to purchase goods or services. Enbridge is in no manner committed or obligated to select, pre-qualify or enter into a contract with any recipient of this RFQ (a "**Recipient**"). No contract or other binding obligation on Enbridge will be implied (by law or otherwise) unless and until Enbridge and Recipient have executed a definitive agreement on terms and conditions acceptable to Enbridge.

2. Costs. Any and all costs, expenses, losses or damages (collectively the "**Costs**") incurred in responding to this RFQ or any related demonstrations or presentations or other activities are the sole responsibility of the Recipient. Recipient irrevocably and unconditionally waives any claims against Enbridge relating to Costs incurred by Recipient. This RFQ may be withdrawn at any time and Enbridge shall not be liable for any Costs incurred or suffered as a result of such withdrawal.

3. Confidentiality. As a condition of receiving the RFQ, the Recipient executed a confidentiality agreement with Enbridge (the "**Confidentiality Agreement**"). This RFQ and all associated communications and discussions constitute Confidential Information as defined in the Confidentiality Agreement.

4. Monetary Amounts/Governing Law. All monetary amounts in the Recipient's response to this RFQ (a "**Proposal**") are to be expressed in Canadian dollars, unless otherwise requested. The relationship of Recipient and Enbridge will be governed by the laws of the Province of Ontario and the laws of Canada applicable therein.

5. Masters Services Agreement (MSA). The Proposals shall also meet all terms and conditions of the MSA set out between Enbridge and the Recipient.

6. Proposal Due Date. Enbridge must receive the Recipient's complete Proposal by 12:01 PM EST on July 26th, 2021. Proposals must be received by electronic mail to Evan Tomek who will act as the primary contact for all Recipient inquiries and responses arising from this RFQ:

Evan Tomek
Sr Analyst Environment
CELL: (226) 229-9598
evan.tomek@enbridge.com

50 Keil Drive North, Chatham, ON N7M 5M1
All inquiries will be responded to within five (5) business days, At Enbridge's discretion, inquiries from one Recipient may be shared with all Recipients.

7. Proposal Content and Review. Recipient should provide all information requested as noted in this RFQ. Following receipt and review of a Proposal, Enbridge may, at its sole option, enter into discussions and negotiations with a Recipient with a view to negotiating an agreement for delivery of requested services. Enbridge's consulting services agreement will be the agreement that will used for purposes of these negotiations.

Project Summary, Scope of Work and Required Deliverables

Refer to the Terms of Reference, a copy of which is attached to this RFQ as Appendix A.

Schedule

Upon selection of the successful Recipient, this agreement will form the basis for settlement of a new Schedule under the Masters Services Agreement (Enbridge Inc).

APPENDIX A

TERMS OF REFERENCE

ENVIRONMENTAL, CUMULATIVE EFFECTS, STAGE I & II ARCHAEOLOGICAL ASSESSMENT, CULTURAL HERITAGE ASSESSMENT AND SPECIES AT RISK

TERMS OF REFERENCE

PANHANDLE REGIONAL EXPANSION PROJECT

1. INTRODUCTION

To increase capacity and accommodate additional demand for affordable and reliable natural gas, including in the fast-growing greenhouse sector in the Kingsville, Leamington, and Wheatley areas, Enbridge Gas is proposing to increase the capacity of the Panhandle Transmission System, which serves residential and business customers in Windsor, Essex County, and western Chatham-Kent. The Panhandle Regional Expansion Project (the Project) includes the construction of the following:

- A natural gas transmission pipeline that will be up to 42 inches in diameter and approximately 23 km in length. The pipeline will loop the existing NPS 20 Panhandle Pipeline and will commence at the Enbridge Gas Dover Transmission Station on Townline Road in Chatham-Kent and will terminate at the Comber Transmission Station on Rochester Townline in Lakeshore.
- A transmission lateral that will be approximately 5 km of Nominal Pipe Size (NPS) 16 that will connect the NPS 12 Leamington North Loop Pipeline with the NPS 8 Leamington Reinforcement Pipeline in the Mersea Road 11 road allowance.
- A transmission lateral that will be approximately 10 km of NPS 16 that will loop the existing NPS 4 pipeline from the NPS 20 Panhandle Pipeline on Wheatley Road to the Wheatley Road Station in the road allowance.

Please see the attached map in Section 7.

In support of this project, Enbridge is seeking the services of an environmental consultant to perform an Environmental Assessment, including an environmental, cumulative effects and stage I archaeology assessment of the proposed work, as well as, prepare an Environmental Report documenting all findings and recommended mitigation measures. This report must satisfy the Ontario Energy Board's (OEB) Environmental Guidelines for the Location, Construction and Operation for Hydrocarbon Pipelines and Facilities in Ontario, 7th ed. 2016 and the Canadian Environmental Assessment Act (CEAA) (if applicable).

The report will become part of evidence to be filed with the OEB. Enbridge will file a Leave-to-Construct application for this pipeline with the OEB.

Also in support of this project, Enbridge is seeking the servicecs of an environmental consultant to perform a Stage II Archaeological Assessment, Cultural Heritage Assessment and field surveys supporting the review for Species at Risk.

It is anticipated that the new pipeline will generally follow the existing NPS 20 Panhandle Transmission Pipeline, and the transmission laterals will be located in the road allowance - please refer to the attached map in Section 7 for a general overview of the potential pipeline routes. It is expected that the successful consultant will evaluate the proposed area and potential pipeline routes to ensure the final route meets project objectives.

An integrated public consultation program will also be required throughout the period of this study. This program should include affected government agencies, Indigenous groups, interest groups, landowners and other interested parties. The proposal should include a description of the consultant's public consultation program.

SELECTION OF THE PREFERRED PIPELINE

Phase I Selection of Pipeline Route Alternatives and Preliminary Preferred Route

The consultant will complete an environmental inventory of the selected study area. This will include desktop studies, site visits, and personal contact with local, provincial, and federal government agencies.

As part of this study, the selected consultant will be required to ensure that the local environmental interest groups, directly and indirectly affected landowners and the public and private sector are notified and kept informed about the project and the Study findings. The contact list and comment tracking shall be documented in the Environmental Report. The consultant will be responsible for responding to general inquiries, where more project specific or technical questions arise, the consultant shall direct them to the Enbridge team for response. Enbridge's own Indigenous Engagement Advisor will complete the Indigenous consultation but it is expected that the consultant will support in this engagement, which could include identifying Indigenous groups within the study area, providing project details, logging consultation, etc.

Based on the environmental information collected, together with the technical requirements for construction, the consultant will be expected to define a study area and potential micro routing for the proposed pipeline.

A public information session should be held to seek public input and preferences for the alternate routes and preliminary preferred route identified. It should be clear to the public participants how the information gathered at this meeting is to be used and how the environmentally preferred route for the pipeline will be selected in principle. In order that all potential stakeholders in the proposed pipeline are made aware of the meeting, a mail drop for residents within the study area is required. The consultant will be expected to make all arrangements for this meeting including preparation of any newspaper advertisements, virtual visual displays, questionnaires, etc. Costs associated with the placement of newspaper ads will be the responsibility of the consultant as well as the arrangement for placement of these ads. Based on the length of the proposed route, Enbridge suggests two in person information sessions one at each end of the project or one virtual open house should Covid 19 restrictions still be in place. The successful consultant will be expected to provide costs for these sessions.

In order to aid in the collection of stakeholder comments, please include the development of a project specific e-mail.

Phase II Environmental Considerations of Preferred Route

As part of this study, the selected consultant will be expected to develop criteria by which to evaluate the proposed routes. The criteria will be based on the information received from the government agencies and from the environmental data compiled. Applying this criterion, the consultant will be expected to select the Preferred Route. This evaluation must be objective, replicable and defendable.

It is expected that the consultant will extract relevant environmental information including, but not limited to:

1. geological resources (including depth to bedrock)
2. soil resources
3. wetlands (in accordance with the current Policy Statement)
4. surface and groundwater conditions
5. aquatic resources
6. heritage resources
7. seismic activity (if applicable)
8. vegetation
9. wildlife habitat (including vulnerable, threatened and endangered species)
10. waste management areas (open and closed)
11. social and cultural features, including identifying which route has the most working space
12. cumulative effects

Other relevant environmental information on mineral resources, land uses, recreational areas, and municipal zoning may also be required.

Having selected the Preferred Route, the consultant will be expected to focus on refining and collecting further environmental and socio-economic information in more detail along the Preferred Route and developing mitigation and monitoring (if applicable) plans for this route.

It is expected that this detailed environmental information will be transposed to appropriate maps (i.e. figures, tables, alignment sheets, etc.) to be included in the Environmental Report and will also provide the basis for predicting the environmental impacts of the Preferred Route. The consultant will also be expected to provide advice on suitable mitigation measures to manage those impacts during construction and operation of the pipeline. Mitigation measures and suggested remediation should comply with accepted industry practice and Enbridge's Construction Specifications. Should the Preferred Route cross any environmentally sensitive areas, more detailed site specific maps will be required to indicate the proposed site specific mitigative measures.

2. OUTSIDE CONTACTS AND MEETINGS

Enbridge shall be notified of all meetings, contacts with provincial, regional and local government representatives, indigenous groups, interest groups, associations and other knowledgeable individuals that the Consultant may use in completing the required work. This may be achieved by providing Enbridge with a list of agencies to be contacted at the beginning of the study.

The Consultant shall maintain an updated contact list of names, titles, addresses and phone numbers of all individuals and agencies contacts, the method of contact as well as the subject matter discussed. This may be accomplished through the use of Enbridge's standard contact form, or an equivalent. An annotated list shall be submitted to Enbridge with the draft and final versions of the Environmental Report.

3. ARCHAEOLOGY ASSESSMENT

The Stage I Archaeology Assessment ("Stage I AA") will include a background review of the entire study area on surficial geology, post-glacial landscape evolution, historical and present land uses and will also review available data from the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI). Based on the results of the Stage I AA, recommendations will be made for a Stage II Archaeology Assessment. All aspects of the Stage I AA will meet requirements set out by the MHSTCI.

A Stage II Archaeology Assessment along with Indigenous Participation should also be included for the Project.

4. CULTURAL HERITAGE ASSESSMENT

The Cultural Heritage Assessment will include a review of the study area for known and potential cultural heritage resources, as well as a description of potential impacts of the Project and mitigation strategies to minimize such impacts. The study methodology should be consistent with guidelines provided by the MHSTCI.

5. SPECIES AT RISK

A field program using standard protocols to characterize existing terrestrial natural heritage conditions and to identify the presence of species at risk and their habitats should be included with the proposal along with Indigenous participation.

6. SCHEDULING

The work will commence as soon as the contract is awarded. The consultant will be required to attend a kick-off meeting prior to the commencement of work. The following is a draft schedule. Please indicate any proposed variations to this schedule in your proposal, with a brief discussion of the change(s).

Please note that Enbridge would like to have this pipeline in-service as early as Fall 2023 so timelines are critical.

Key Project Phase	**Date Required**
Proposal Due	July 26th, 2021
Award of Contract	August 3rd, 2021
Kick-Off Meeting	August 9th, 2021
Public Open Houses	October 2021 – January 2022

Submission of Draft Report to Company	March 2022
Final Report	Within 7 days of receiving one compiled list of comments

7. PROJECT PROPOSAL

The following information should be included in the Proposal:

1. A detailed outline of the proposed study approach indicating all tasks to be undertaken (i.e. route generation, background research, site visits, route evaluation, consultation program, impact assessment, mitigation/monitoring, Stage I and II Archaeology Assessment, etc.) and assumptions used in the work plan.

2. The work schedule for all tasks and final report preparation. Included in this, should be the assumptions used for the number of meetings required between Enbridge and the selected Recipient. The Recipient should assume that the kick-off meeting scheduled for the week of August 9th, 2021 would take place virtually via Microsoft Teams. Any variations from the proposed schedule should be identified in the proposal, including a rationale for doing so.

3. Estimates for all costs incurred including, but not limited to (fees and expenses to be broken out separately):
    - Professional fees
    - Mapping to support the MENDM Duty to Consult Letter
    - Data gathering
    - Field visits
    - Disbursements
    - Stage I and II Archaeological Assessment
    - Cultural Heritage Assessment
    - Species at Risk/Natural Heritage
    - Direct mailing supporting the open house(s) (alternate routes)

4. Estimates for all maps and the types of maps proposed to be used for displaying the environmental information. The Recipient should also indicate the scales of the maps that are intended to be used.

5. Organizing, and providing suitable visual, virtual materials for community information meetings. This cost should also include an estimated cost for preparing mail drops, preparing the newspaper advertisements (please include 2 newspaper advertisements), questionnaires, and the names of the proposed newspapers in which the adverts will be placed.

6. Estimated costs associated with the preparation of the draft and final copy of the report in Adobe Acrobat or Microsoft Word format. The draft report shall be in a format that is easy to review and edit (i.e. track changes). Costs shall include 8 copies of a final report including all maps. Four of these copies must be un-redacted while 4 copies must be redacted. The final report must be in a format suitable for immediate distribution to agencies and include redacted and un-redacted versions. The consultant should also include any assumptions

used in reviewing the draft report. In addition, one copy of the report, including all graphics, should be provided in a format suitable for copying.

7. A table providing the people involved in the project, their title, rate as per the MSA and their percent involved in the project. Also, their qualifications should be provided. The use of any sub-consultants, if required should also be specified. If similar project experience is listed, please indicate the function of current proposed project team members during those projects, if any.

8. A schedule of per diem professional fees for attendance at additional meetings and for testifying at the OEB, if required.

9. Recipient must prepare a communication strategy for the project which includes public, agency and Indigenous consultation (i.e. stakeholder list, consultation log, etc.).

6. GENERAL

Payment

The selected Recipient shall invoice in accordance with the approved payment schedule set out in the Proposal as well as the MSA. Extra report copies, meeting or hearing exhibits, maps etc. not specifically included in the lump sum cost submitted with Recipient's Proposal, will be considered an extra. Enbridge must approve all extras in writing. Attendance at meetings, preparation of evidence and expert witness testimony, if required, shall be charged on a per diem schedule of fees plus expenses. The selected Recipient shall not undertake any additional fieldwork or sampling not specified in this proposal without the prior approval of Enbridge.

Confidentiality

All information provided by Enbridge and all material generated during this assignment is and shall remain the property of Enbridge and shall remain confidential unless specific written authorization by Enbridge provides otherwise.

Performance

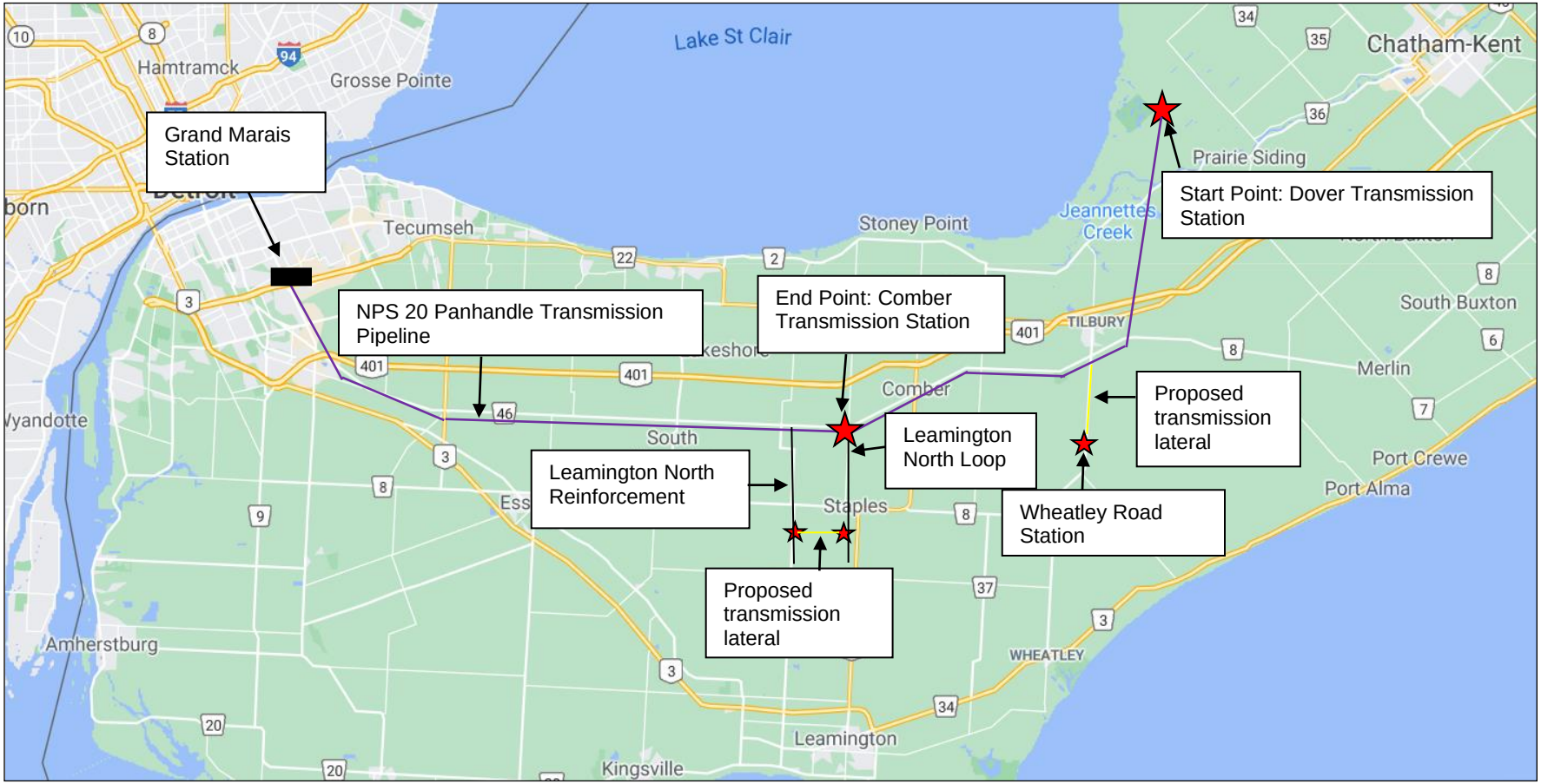
The selected Recipient, in performing their duties, shall at all times act in the best interests of Enbridge and exercise a degree of skill, care and diligence required by customarily accepted professional practices and procedures normally provided in the performance of such services.

Government Contacts

In undertaking this assignment, the selected Recipient may wish to contact municipal, provincial or federal agencies for the purpose of obtaining existing environmental data. The selected Recipient shall provide prior notice of all intended contacts to Enbridge.

7. PROPOSED PIPELINE ROUTE(S)

Proposed Start Points and End Points:



ENBRIDGE GAS INC.

Undertaking Response to TFG

To advise where EGI typically sources offsets.

Response:

To date, Enbridge Gas has only purchased offsets for use in compliance programs (e.g., previous provincial Cap and Trade program, federal Output-Based Pricing System). Enbridge Gas has sourced such offsets using external consultants with carbon market expertise, who have connected the Company with counterparties who have government recognized offsets available for sale.

ENBRIDGE GAS INC.

Undertaking Response to TFG

To provide a description of the roles of the environmental inspector.

Response:

Enbridge Gas will retain an Environmental Inspector to support the construction phase of the Project. The Environmental Inspector will have the necessary experience in pipelines, facilities, or major construction projects, be experienced in working with landscape and environmental conditions similar to the Project and will have an in-depth knowledge of major project construction techniques.

The Environmental Inspector will participate in training courses provided by Enbridge Gas (e.g., project specific training, including environmental training) and will complete both Enbridge Gas and Contractor required safety courses.

The Environmental Inspector will monitor construction and prepare daily reports of the activities and conditions that they inspect. The environmental issues and the implementation of mitigation measures will be carefully monitored by the Environmental Inspector. When warranted, applicable resource specialists (e.g., vegetation resource specialist) will be available to assist with site-specific issues (e.g., identification of potential rare plants). If the mitigation measures are not found to be effective, the Environmental Inspector will consult with one or more of Construction Management and the Environmental Advisor as warranted and appropriate. The Environmental Inspector is also responsible for:

- monitoring compliance with environmental commitments;
- confirming approvals are in place and that approval conditions are followed;
- recommending additional or alternative mitigation measures;
- noting potentially adverse environmental effects;
- identifying site-specific issues;
- documenting any pre-existing environmental issues (e.g., previously admixed soils); and,
- determining the status of environmental issues following construction of the pipeline.

Both the Environmental Inspector and Construction Management will communicate with the Contractor, when warranted, regarding implementation of mitigation measures.

The Environmental Inspector will report directly to the Enbridge Gas Environment department (Environment Advisor). The Environmental Inspector will have crew shut-down authority for environmental reasons. It will be the responsibility of the

Environmental Inspector to make recommendations to Construction Management regarding environmental shut-down (e.g., wet weather shut-down).

ENBRIDGE GAS INC.

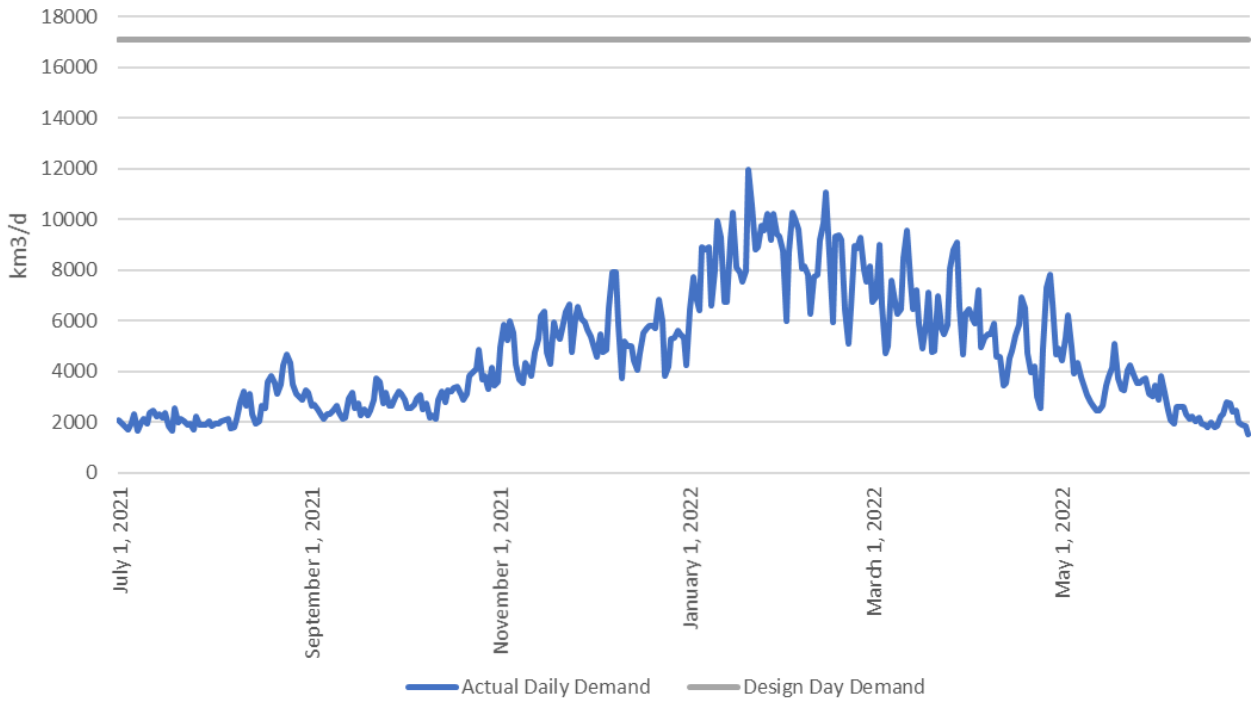
Undertaking Response to ED

To produce actual figures shown on page 6 for the panhandle area for the most recent year.

Response:

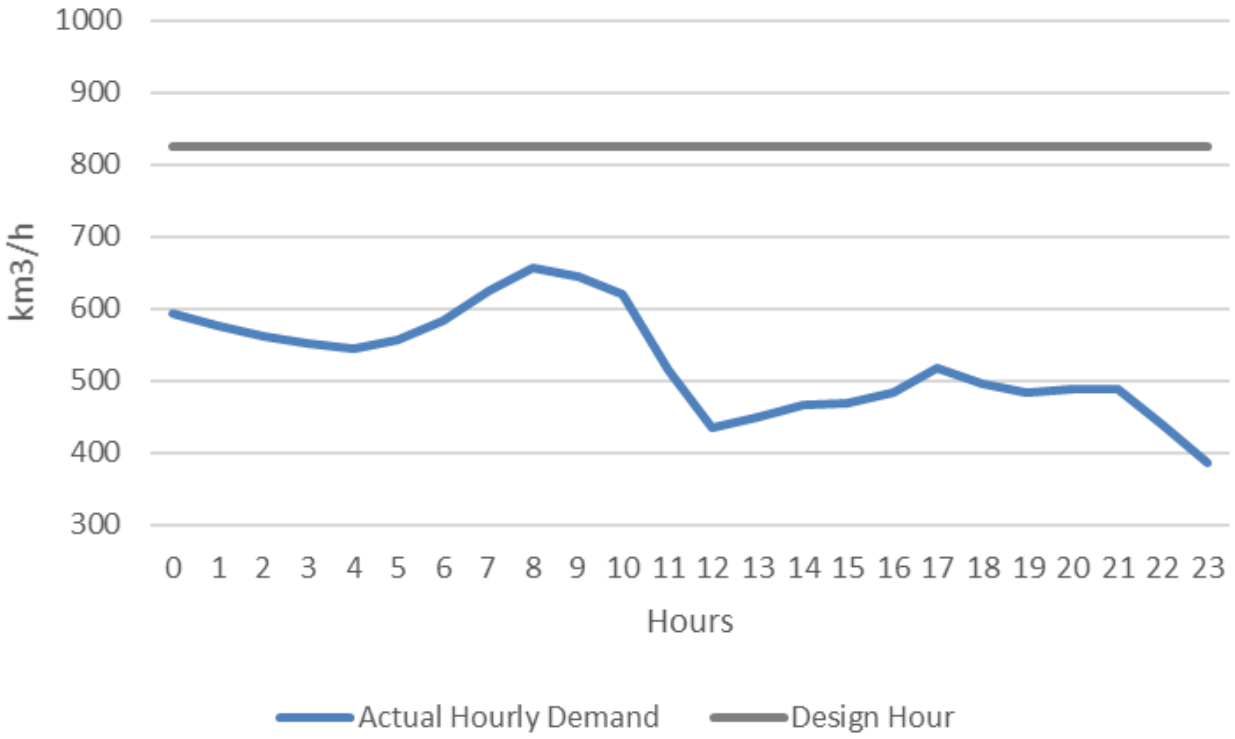
Please see Figures 1 and 2 below.

Figure 1: Annual Demand Profile for the Panhandle System, from July 2021 to June 2022, and Design Day Demand[1]



[1] The peak day demand and peak hour demand from July 2021 to June 2022 occurred within the January 20, 2022, gas day (01/20/22 10:00 am to 01/21/22 9:59 am) at a 30.5 HDD. The design day demand for the Panhandle system is 43.1 HDD, therefore the peak demand day within this period was 12.6 HDD less than the design day demand.

Figure 2: Hourly Demand Profile for the Panhandle System on January 21, 2022, and Design Hour Demand[2]



[2] Design Hour corresponds to the transmission system and its Design Day Demand.

ENBRIDGE GAS INC.

Undertaking Response to ED

To provide another version of JT1.4 showing tax impacts, including with the tax netted out

---

Response:

Please see Attachment 1 to this response.

Calculation of Revenue (Distribution Margins)

PREP - Panhandle Regional Expansion Project
InService Date: Nov-01-2023

Line	Project Year ($000's)		1	2	3	4	5	6	7	8	9	10
	Distribution costs are recovered from Contract rate classes based on Firm Contract Demand (CD)											
	The deemed incremental revenue is based on the capacity created by the Project											
	Contract Methodology: Total CD * 12 * Distribution Margin											
1	Distribution Margin $/M3 / month	0.092084										
2	Contract Demand 10^3m^3/month		752	2,852	3,485	4,117	4,750	4,998	4,998	4,998	4,998	4,998
3	Distribution Margin		$831	$3,151	$3,850	$4,550	$5,249	$5,523	$5,523	$5,523	$5,523	$5,523
	General Service Distribution Margin = Volumes * Distribution Margin											
4	Distribution Margin $ / M3 consumed	0.108525										
5	Volume 10 ^3 M^3		2,026	6,070	10,111	14,153	18,194	22,236	24,253	24,253	24,253	24,253
6	Distribution Margin		$220	$659	$1,097	$1,536	$1,975	$2,413	$2,632	$2,632	$2,632	$2,632
7	Total Distribution Margin		$1,051	$3,810	$4,948	$6,086	$7,224	$7,936	$8,155	$8,155	$8,155	$8,155
8	Income Tax (rate = 26.5%)		$278	$1,010	$1,311	$1,613	$1,914	$2,103	$2,161	$2,161	$2,161	$2,161
9	After Tax Total Distribution Margin		$772	$2,800	$3,637	$4,473	$5,309	$5,833	$5,994	$5,994	$5,994	$5,994

The Distributions margins are Jan 2022 rates

ENBRIDGE GAS INC.

Undertaking Response to ED

Re ER IR 1, page 2 table, to provide the table showing annual demand instead of cubic metres per day; if not, to explain why not.

Response:

Please refer to Table 1 below for the forecast annual demand for the Panhandle System, prepared on a best-efforts basis. The annual demand forecast is not produced at the required level of detail to identify Panhandle System volumes specifically and therefore the following assumptions were made:

General Service Market:

- Forecasted volumes are weather normalized volumes at the OEB-approved 2022 weather normal.
- The forecast portion identified as Panhandle System-related is based on the 15 year trend for the portion of total Union South rate zone volumes from the Windsor & Chatham district areas.

Contract Market:

- Contract firm volumes are based on the aggregate of contracts that are identified as being serviced utilizing the Panhandle system.

Table 1 - Panhandle System Annual Demand Forecast

	Historical Actuals (10^3m^3)		Forecast (10^3m^3)									
	2019 Total	**2020 Total**	**2021 Total**	**2022 Total**	**2023 Total**	**2024 Total**	**2025 Total**	**2026 Total**	**2027 Total**	**2028 Total**	**2029 Total**	**2030 Total**
General Service Firm (Total System Demand)	753,845	731,168	739,957	754,250	755,210	759,816	757,248	758,102	758,734	762,670	759,309	759,300
Contract Firm (Total System Demand)	770,910	811,445	815,150	858,849	934,992	1,080,237	1,351,937	1,415,687	1,479,437	1,543,187	1,606,937	1,670,687
Total System Demand Forecast	1,524,754	1,542,613	1,555,107	1,613,099	1,690,202	1,840,053	2,109,186	2,173,789	2,238,171	2,305,858	2,366,247	2,429,987
General Service Firm (Total Incremental Demand)		(22,677)	8,789	14,294	959	4,606	(2,567)	854	632	3,937	(3,361)	(9)
Contract Firm (Total Incremental Demand)		40,535	3,706	43,698	76,143	145,245	271,700	63,750	63,750	63,750	63,750	63,750
Total Incremental Demand Forecast		17,858	12,494	57,992	77,103	149,851	269,133	64,604	64,382	67,687	60,389	63,741
Total Incremental Demand Forecast (Cumulative)	-	-	12,494	70,487	147,589	297,440	566,573	631,177	695,558	763,245	823,634	887,375

ENBRIDGE GAS INC.

Undertaking Response to ED

To provide an approximate, average, all-in capital cost per customer to connect new developments in the panhandle region, if possible; if not, to indicate why.

Response:

Enbridge Gas does not track all-in capital costs for customer service connections for the Panhandle System region in the manner sought by ED. Further, the Company cautions against drawing conclusions based on estimated approximate averages in this regard as the specific costs of customer service connections varies widely depending upon several factors, including timing/season, geographic conditions, and size/scale of associated facilities.

ENBRIDGE GAS INC.

Undertaking Response to ED

To provide a table expressing attachments and average use per customer, to reconcile attachments with the forecast incremental demand for the stage 2 analysis

---

Response:

The customer attachment forecast and average use per customer used in the stage 2 analysis can be found in Tables 1 and 2 below, respectively.

Table 1: Customer Attachment Forecast used in Stage 2 Analysis

	2023	2024	2025	2026	2027	2028
Residential Attachments	1,186	1,184	1,184	1,184	1,184	1,184
Small Commercial Attachments	115	115	115	115	115	115
Large Commercial Attachments	4	4	4	4	4	4
Small Industrial Attachments	1	0	1	0	1	0

Table 2: Normalized Average Consumption (NAC) used in Stage 2 Analysis

	m^3/year
Residential NAC	2,131
Small Commercial NAC	8,273
Large Commercial NAC	139,910
Small Industrial NAC	14,568

Table 3 below displays the difference in the customer attachment forecast used in the stage 2 analysis, compared to the customer attachment forecast provided in the response at Exhibit I.ED.2, Table 1. The customer attachments in the stage 2 analysis excluded a small community that was included at Exhibit I.ED.2, Table 1. The difference is not material.

Table 3: Customer Attachment Variance – Stage 2 vs Exhibit I.ED.2, Table 1

	2023	2024	2025	2026	2027	2028
Residential Attachments	(4)	(4)	(4)	(4)	(4)	(4)
Commercial Attachments	(2)	(2)	(2)	(2)	(2)	(2)
Industrial Attachments	0	0	0	0	0	0

The average use per customer in the stage 2 analysis cannot be directly compared to the average use per customer in the response at Exhibit I.ED.2, as the former is presented in annual m^3 consumption while the latter is m^3/hr demand.

ENBRIDGE GAS INC.

Undertaking Response to ED

To provide the referenced figures as demand day rather than demand hour figures

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Response:

See below for the figures provided at Exhibit I.ED.2 p. 2, restated in m^3/day (rather than m^3/hr).

Residential: 0.97 m^3/h = 19.4 m^3/d
Small Commercial: 4.4 m^3/h = 88 m^3/d
Large Commercial: 50.3 m^3/h = 1,006 m^3/d
Industrial: 12.4 m3/h = 248 m^3/d

ENBRIDGE GAS INC.

Undertaking Response to ED

To file the aggregate demand for Stellantis (subject to confidentiality obligations)

Response:

The requested information can be found in the response at Exhibit I.PP.5 c), Table 1.

ENBRIDGE GAS INC.

Undertaking Response to ED

To make best efforts to restate the table at ED 3, page 2, using cubic metres per hour

---

Response:

Please see Table 1 below. To preserve confidentiality of customer-specific commercially sensitive information that could divulge the nature and timing of investment decisions, Enbridge Gas is seeking confidential treatment of redacted content in Table 1.

Table 1: Panhandle System Design Day Demand Forecast

	Historical Actuals (m3/h)		FORECAST (m3/h)									
	Winter 19/20	Winter 20/21	Winter 21/22	Winter 22/23	Winter 23/24	Winter 24/25	Winter 25/26	Winter 26/27	Winter 27/28	Winter 28/29	Winter 29/30	Winter 30/31
General Service Firm	406,888	392,665	394,377	395,819	397,300	398,624	400,084	401,523	402,795	404,070	405,506	406,823
Greenhouse - Firm Contract Only	254,499	285,050										
Power Generators - Firm Contract only	112,411	112,768	112,504	112,504	112,504	173,630	173,630	173,630	173,630	173,630	173,630	173,630
Large Commercial/Industrial - Firm Contract only	75,999	79,207										
Total System Demand Forecast	**849,798**	**869,690**	**892,259**	**926,482**	**999,972**	**1,101,978**	**1,142,998**	**1,183,994**	**1,224,825**	**1,265,655**	**1,306,649**	**1,347,524**
General Service Firm (Incremental)	24,316	(11,115)	2,111	1,442	1,481	1,324	1,460	1,439	1,272	1,275	1,436	1,317
Greenhouse - Firm Contract Only (incremental)	44,773	32,494										
Power Generators - Firm Contract only (incremental)	(23,574)	1,216	(149)	-	-	61,126	-	-	-	-	-	-
Large Commercial/Industrial - Firm Contract only (incremental)	(4,280)	3,788										
Total Incremental Demand Forecast	**41,235**	**26,383**	**23,453**	**34,223**	**73,490**	**102,006**	**41,020**	**40,996**	**40,830**	**40,831**	**40,994**	**40,874**
Total Incremental Demand Forecast (Cumulative)			**23,453**	**57,676**	**131,166**	**233,173**	**274,192**	**315,189**	**356,019**	**396,849**	**437,844**	**478,718**

ENBRIDGE GAS INC.

Undertaking Response to ED

To restate the table at ED 3, page 3, using TJ's per day

Response:

Please see Table 1 below for a restated version of Exhibit I.ED.3 c), Table 2, that includes an additional column for Power Generation Demand expressed in TJ per day.

Table 1: Natural Gas-fired Power Generation on the Three Highest Demand Days

Year	Date	Power Generation Demand (10^3m^3/day)	Power Generation Demand (TJ/d)*
2022	20-Jan-2022	2311	90.9
2022	21-Jan-2022	1549	60.9
2022	14-Feb-2022	1774	69.8
2021	5-Feb-2021	11	0.4
2021	15-Feb-2021	7	0.3
2021	16-Feb-2021	14	0.6
2020	13-Feb-2020	64	2.5
2020	26-Feb-2020	44	1.7
2020	27-Feb-2020	48	1.9
2019	29-Jan-2019	654	25.4
2019	30-Jan-2019	684	26.6
2019	31-Jan-2019	1492	58.0
2018	04-Jan-2018	1258	49.0
2018	05-Jan-2018	1563	60.9
2018	16-Jan-2018	1545	60.2
2017	6-Jan-2017	1639	63.6
2017	7-Jan-2017	302	11.7
2017	13-Mar-2017	69	2.7
2016	4-Jan-2016	2198	84.7
2016	17-Jan-2016	1112	42.8
2016	18-Jan-2016	1128	43.5
2015	19-Feb-2015	3215	123.1
2015	20-Feb-2015	3578	137.0
2015	23-Feb-2015	3172	121.4
2014	21-Jan-2014	4261	162.2
2014	22-Jan-2014	4241	161.4
2014	11-Feb-2014	4114	156.6
2013	21-Jan-2013	1854	70.1
2013	22-Jan-2013	3229	122.1
2013	23-Jan-2013	2822	106.7

NOTES:
*The conversion to TJ/d was completed using the System Wide Average Heating Valve relevant for the specific winter year.

ENBRIDGE GAS INC.

Undertaking Response to ED

To restate the table at ED 3, page 2, showing greenhouses broken out from the contract firm

---

Response:

Please see Table 1 below. To preserve confidentiality of customer-specific commercially sensitive information that could divulge the nature and timing of investment decisions, Enbridge Gas is seeking confidential treatment of redacted content in Table 1.

Table 1: Panhandle System Design Day Demand Forecast

	Historical Actuals (TJ/d)		FORECAST (TJ/d)									
	Winter 19/20	Winter 20/21	Winter 21/22	Winter 22/23	Winter 23/24	Winter 24/25	Winter 25/26	Winter 26/27	Winter 27/28	Winter 28/29	Winter 29/30	Winter 30/31
General Service Firm	317	308	310	311	312	313	315	316	317	318	319	320
Greenhouse - Firm Contract Only	159	179										
Power Generators - Firm Contract only	105	106	106	106	106	164	164	164	164	164	164	164
Large Commercial/Industrial - Firm Contract only	59	62										
Total System Demand Forecast	**640**	**656**	**672**	**694**	**744**	**828**	**854**	**880**	**906**	**932**	**958**	**983**
General Service Firm (Incremental)	19	(9)	2	1	1	1	1	1	1	1	1	1
Greenhouse - Firm Contract Only (incremental)	28	20										
Power Generators - Firm Contract only (incremental)	(22)	1	(0)	-	-	58	-	-	-	-	-	-
Large Commercial/Industrial - Firm Contract only (incremental)	(3)	3										
Total Incremental Demand Forecast	**21**	**16**	**16**	**22**	**50**	**84**	**26**	**26**	**26**	**26**	**26**	**26**
Total Incremental Demand Forecast (Cumulative)			**16**	**38**	**88**	**172**	**198**	**224**	**249**	**275**	**301**	**327**

ENBRIDGE GAS INC.

Undertaking Response to ED

To restate the table at ED 3, page 4, adding another row to show actual amounts for power generation demand from the highest winter demand day, historic

---

Response:

Please see Table 1 below for a restated version of Exhibit I.ED.3 d), Table 3, that includes Actual Power Generation Demand from the highest historic winter demand day.

Table 1: Power Generation Demands, Design and Actual (historical)

	Design Day Demands (TJ/d)									
	Winter 12/13	**Winter 13/14**	**Winter 14/15**	**Winter 15/16**	**Winter 16/17**	**Winter 17/18**	**Winter 18/19**	**Winter 19/20**	**Winter 20/21**	**Winter 21/22**
Power Generators - Firm Only (TJ/d)	108	108	129	130	131	131	127	105	106	106
Actual Power Generation Demands Historical (TJ/d) on highest winter demand day	122	161	123	44	64	61	27	2	1	91

ENBRIDGE GAS INC.

Undertaking Response to ED

To confirm whether the cited figure was applied to the full greenhouse demand in the general service category.

Response:

Confirmed.

The peak hour reduction savings, shown in the response at Exhibit I.ED.7, Attachment 3, includes all greenhouse customers in the general service category.

ENBRIDGE GAS INC.

Undertaking Response to ED

To confirm which of these was applied to the greenhouse measures and to ask posterity whether that should be adjusted because those greenhouse measures are so highly temperature-dependent

---

Response:

All greenhouse measures reduce energy consumption and energy peak for the Industrial HVAC end-use (Exhibit I.ED.7, Attachment 4, p. 3). The hours-use factor for this end-use has been developed using a weather-related load shape, which takes into consideration temperature dependency, and therefore no additional adjustments are required.

ENBRIDGE GAS INC.

Undertaking Response to ED

To make best efforts to add to the chart that appears at ED 7, attachment 3, two columns: one for cubic metres per day peak hour reduction, and two, for cubic metres per day base case; if not for the whole table, to provide the information for the greenhouse improvements

---

Response:

Please see Attachment 1 to this response for a restated version of Exhibit I.ED.7, Attachment 3, with an additional column added representing the conversion of peak hour reduction to peak day. For clarity, as stated in the response to Exhibit I.ED.7 d), the scope of Posterity's analysis was for general service customers on the distribution network within the Leamington, Kingsville and Wheatley area. The focus of the analysis was on peak hour, and therefore the model was calibrated only for peak hour. The peak hour values are simply being converted to peak day via a conversion factor, to allow for comparison to the project need.

There is no measure level base case as Posterity's analysis represents the total savings potential available based on the subset of customers in the analysis. The base case would be the total demand of those customers.

Measure Name	Peak Hour Reduction (m3/hr) by 2029	m3/day Reduction by 2029 *
Com | Adaptive Thermostats	0.0	0.00
Com | Air Curtains	-	-
Com | Boilers - Advanced Controls (Steam Systems)	2.4	0.00
Com | CEE Tier 2/Energy Star Clothes Washers	0.0	0.00
Com | Condensing Boiler | Std	23.7	0.02
Com | Condensing Make Up Air Unit	4.8	0.00
Com | Condensing Storage Water Heater	-	-
Com | Demand Control Kitchen Ventilation	4.8	0.00
Com | Demand Control Ventilation	4.6	0.00
Com | Demand controlled Circulating Systems	0.1	0.00
Com | Destratification	51.1	0.04
Com | Dock Door Seals	-	-
Com | Drain Water Heat Recovery (DWHR) | Retro	0.0	0.00
Com | Drain Water Heat Recovery (DWHR) |New	0.0	0.00
Com | Energy Efficient Laboratory Fume Hood	92.8	0.07
Com | Energy Recovery Ventilation and Ventilation (Enhanced)	6.8	0.01
Com | ENERGY STAR Dishwasher	0.8	0.00
Com | ENERGY STAR Fryer (84% eff)	3.4	0.00
Com | ENERGY STAR Griddle (74% eff)	1.5	0.00
Com | ENERGY STAR Steam Cooker	2.3	0.00
Com | Furnace Tune-Up	0.0	0.00
Com | Gas Convection Oven	-	-
Com | Gas Fired Heat Pump	1.0	0.00
Com | Gas Fired Rooftop Units	8.8	0.01
Com | Heat Recovery Ventilator	3.4	0.00
Com | High Efficiency Condensing Furnace AFUE 95% from 80% code	-	-
Com | High Efficiency Underfired Broilers	2.0	0.00
Com | HOTEL OCCUPANCY CONTROLS (HVAC + LIGHTING)	-	-
Com | Ice Rink Heat Recovery	-	-
Com | Infrared Heaters	0.7	0.00
Com | Low Flow Pre-Rinse Spray Nozzle	2.5	0.00
Com | Ozone Laundry Treatment	2.4	0.00
Com | Roof Insulation/Ceiling Insulation (R25 Code to R35)	-	-
Com | Solar Water Preheat (Pools/DHW)	0.4	0.00
Com | Steam System Optimization	-	-
Com | Super High Perf Glazing |New	-	-
Com | Super High Perf Glazing |RET	-	-
Com | Super-High Efficiency Furnaces (Emerging Tech)	-	-
Com | Wall Insulation	20.4	0.02
Ind | Air Compressor Heat Recovery	1.7	0.00
Ind | Boiler Tune Up	-	-
Ind | Boiler Upgrade	250.7	0.20
Ind | Direct Contact Water Heaters	69.0	0.05
Ind | Gas Turbine Optimization	0.2	0.00
Ind | Greenhouse Envelope Improvements	75.7	0.06
Ind | HE HVAC Controls	91.3	0.07
Ind | HE HVAC Units	0.8	0.00
Ind | HE Stock Tank	0.5	0.00
Ind | High Efficiency Burners	17.7	0.01
Ind | High Efficiency Furnaces	-	-
Ind | High Efficiency HVAC Fans (Gas)	592.2	0.47
Ind | Improved Controls -Process Heating Gas	3.2	0.00
Ind | Insulation - Steam	3.8	0.00
Ind | Loading Dock Seals	91.3	0.07
Ind | Process Heat Improvements	63.8	0.05
Ind | Process Heat Recovery (Gas)	5.7	0.00
Ind | Process Optimization (Gas)	0.1	0.00
Ind | Recommissioning	0.0	0.00
Ind | Solar Walls	4.6	0.00
Ind | Steam Leak Repairs	-	-
Ind | Steam Trap Repair	1.0	0.00
Ind | Steam Turbine Optimization	0.2	0.00
Ind | VAV Conversion Project (Gas)	325.2	0.26
Ind | Ventilation Optimization (Gas)	7.5	0.01
Res | Adaptive Thermostat	5.5	0.00
Res | Air Sealing	964.6	0.76
Res | Attic Insulation	131.7	0.10
Res | Basement Wall Insulation	167.9	0.13
Res | Condensing Boiler	175.4	0.14
Res | Condensing Storage Water Heater	-	-
Res | DHW Recirculation Systems	-	-
Res | Drain Water Heat Recovery	-	-
Res | Early Hot Water Heater Replacement	-	-
Res | Energy Star Clothes Dryer	-	-
Res | Energy Star Windows	-	-
Res | Floor Insulation	-	-
Res | Furnace Tune Up	-	-
Res | Heat Recovery Ventilator	44.7	0.04
Res | Heat Recovery Ventilator 0% Baseline	558.3	0.44
Res | Heat Recovery Ventilator 55% Baseline	278.0	0.22
Res | High Efficiency Condensing Furnace	-	-
Res | High Efficiency Gas Pool Heater	-	-
Res | Solar Water Preheat (Pools/DHW)	-	-
Res | Tankless Water Heater	-	-
Res | Wall Insulation	344.1	0.27
Res | Whole Home Building Envelope	1,479.9	1.16
Shift Heating Off Peak	877.4	0.69
	6,874.3	**5.4**

* Assumed a 20hr factor and Heating Value of 39.32 MJ/m3

ENBRIDGE GAS INC.

Undertaking Response to ED

To make best efforts to provide the scaling factor for greenhouses used in the prosperity model; to convert the data to cubic metres per day

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Response:

The scaling factors requested are provided in the response at Exhibit I.ED.7, Attachment 1, p. 3. Greenhouses are captured within the Industrial Sector under the Agriculture Segment. These scaling factors were applied to the Union South region of Posterity's IRPA model to match to the proportion of accounts in the Leamington area based on consumption.

ENBRIDGE GAS INC.

Undertaking Response to ED

To recalculate the indicated figure to address the full greenhouse demand as part of the general service, or adjusting the peak factor to address this weather-dependent demand

---

Response:

Please refer to responses at Exhibit JT1.25 and Exhibit JT1.26. Full greenhouse demand within the general service customer set and weather dependent assumptions have already been captured within the existing analysis.

ENBRIDGE GAS INC.

Undertaking Response to ED

To clarify Enbridge's understanding how co2 is absorbed and sequestered from plants in greenhouses

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Response:

Enbridge Gas understands that carbon dioxide is absorbed by plants and used to create plant matter through the process of photosynthesis. Use of carbon dioxide in greenhouses is described in detail by the Ontario Ministry of Agriculture and Farming Affairs Factsheet titled *Carbon Dioxide in Greenhouses* (December 2002).[1]

[1] http://omafra.gov.on.ca/english/crops/facts/00-077.htm

ENBRIDGE GAS INC.

Undertaking Response to ED

To provide Enbridge's internal estimate of gas prices (under advisement)

Response:

Enbridge Gas does not produce internal forecasts of natural gas prices. Enbridge Gas purchases the ICF Base Case natural gas forecast for use when evaluating long-term gas supply procurement opportunities. Please see the response to Exhibit I.PP.11. Enbridge Gas is not able to produce the forecast information sought by ED at this time.

For the natural gas price used in the stage 2 analysis, please see the response at Exhibit I.STAFF.15 c) part iii.

ENBRIDGE GAS INC.

Undertaking Response to ED

To provide the source for the NRCAN pricing for heating oil and propane

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Response:

The sources used in the stage 2 analysis can be found at the following links:

Heating Oil:
https://www2.nrcan.gc.ca/eneene/sources/pripri/prices_bycity_e.cfm?priceYear=2021&productID=7&locationID=19#priceGraph

Propane:
https://www2.nrcan.gc.ca/eneene/sources/pripri/prices_bycity_e.cfm?productID=6&locationID=19&frequency=W&priceYear=2021&Redisplay=

ENBRIDGE GAS INC.

Undertaking Response to ED

Re the table at Pollution Probe 5, page 2, to add a column indicating whether there is a commitment letter or an indemnity letter.

Response:

Please see Table 1 below. To preserve confidentiality of customer-specific commercially sensitive information that could divulge the nature and timing of investment decisions, Enbridge Gas is seeking confidential treatment of redacted content in Table 1.

Table 1

Customer	TJ/day	Contract Start Date	Contract End Date	Commitment Type
[redacted]	1.4	1-Nov-23	31-Oct-28	Distribution Contract
	2.4	1-Nov-23	31-Oct-40	Distribution Contract
	1.6	1-Nov-23	31-Oct-28	Distribution Contract
	57.7	16-Jul-24	15-Jul-29	Distribution Contract
	3.1	N/A	N/A	Letter of Indemnity
	19.0	N/A	N/A	Letter of Indemnity
	1.1	N/A	N/A	Commitment Letter
	2.3	N/A	N/A	Commitment Letter
	2.1	N/A	N/A	Commitment Letter
	2.8	N/A	N/A	Commitment Letter
	0.8	N/A	N/A	Commitment Letter
	2.8	N/A	N/A	Commitment Letter
	2.8	N/A	N/A	Commitment Letter
	1.2	N/A	N/A	Commitment Letter
	5.7	N/A	N/A	Commitment Letter
	1.0	N/A	N/A	Commitment Letter
	0.9	N/A	N/A	Commitment Letter
	2.4	N/A	N/A	Commitment Letter
	3.5	N/A	N/A	Commitment Letter
	3.5	N/A	N/A	Commitment Letter
	3.2	N/A	N/A	Commitment Letter
	11.3	N/A	N/A	Commitment Letter
	1.8	N/A	N/A	Commitment Letter
	1.8	N/A	N/A	Commitment Letter
	1.8	N/A	N/A	Commitment Letter
	10.6	N/A	N/A	Commitment Letter
	0.8	N/A	N/A	Commitment Letter
	1.4	N/A	N/A	Commitment Letter
	1.0	N/A	N/A	Commitment Letter
	1.7	N/A	N/A	Commitment Letter
	0.4	N/A	N/A	Commitment Letter
	1.4	N/A	N/A	Commitment Letter
	6.8	N/A	N/A	Commitment Letter
	3.3	N/A	N/A	Commitment Letter
	0.1	N/A	N/A	Commitment Letter
	1.7	N/A	N/A	Commitment Letter

Distribution Contract Total (TJ/day)	63.1
Letter of Indemnity Total (TJ/day)	22.1
Commitment Letter Total (TJ/day)	82.2
Total Commitments (TJ/day)	**167.3**

ENBRIDGE GAS INC.

Undertaking Response to PP

Re table 1 in IR PP 5, on a best-efforts basis, recognizing they are estimated dates, to identify any corresponding dates to the obligations that are identified in this table.

Response(s):

Please see Table 1 below. To preserve confidentiality of customer-specific commercially sensitive information that could divulge the nature and timing of investment decisions, Enbridge Gas is seeking confidential treatment of redacted content in Table 1.

It is important to note that distribution contracts do not expire. They are evergreen (i.e., automatically renew annually) unless a customer provides notice to Enbridge Gas that they wish to terminate the contract prior to the end of the “Initial Term” of the contract, or prior to the annual renewal date of the contract. Enbridge Gas has no such basis (i.e., customer notice) for which to assume that existing distribution contracts will not be renewed.

Table 1

Customer	TJ/day	Contract Start Date	Contract End Date	Commitment Type	Requested In-service Date (LOI/CL)	Expiry Date (LOI/CL)*
[redacted]	1.4	1-Nov-23	31-Oct-28	Distribution Contract	n/a	n/a
	2.4	1-Nov-23	31-Oct-40	Distribution Contract	n/a	n/a
	1.6	1-Nov-23	31-Oct-28	Distribution Contract	n/a	n/a
	57.7	16-Jul-24	15-Jul-29	Distribution Contract	n/a	n/a
	3.1	N/A	N/A	Letter of Indemnity	1-Aug-23	n/a
	19.0	N/A	N/A	Letter of Indemnity	1-Sep-23	n/a
	1.1	N/A	N/A	Commitment Letter	1-Jan-23	31-Dec-22
	2.3	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	2.1	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	2.8	N/A	N/A	Commitment Letter	1-Nov-23	1-Nov-22
	0.8	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	2.8	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	2.8	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	1.2	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	5.7	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	1.0	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	0.9	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	2.4	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	3.5	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	3.5	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-23
	3.2	N/A	N/A	Commitment Letter	1-Nov-23	31-Oct-22
	11.3	N/A	N/A	Commitment Letter	1-Dec-23	30-Nov-23
	1.8	N/A	N/A	Commitment Letter	1-Jan-24	1-Jan-23
	1.8	N/A	N/A	Commitment Letter	1-Jan-24	1-Jan-23
	1.8	N/A	N/A	Commitment Letter	1-Jan-24	1-Jan-23
	10.6	N/A	N/A	Commitment Letter	1-Apr-24	1-Oct-23
	0.8	N/A	N/A	Commitment Letter	1-Aug-24	31-Jul-23
	1.4	N/A	N/A	Commitment Letter	1-Aug-24	31-Jul-23
	1.0	N/A	N/A	Commitment Letter	1-Aug-24	31-Jul-23
	1.7	N/A	N/A	Commitment Letter	1-Nov-24	31-Oct-23
	0.4	N/A	N/A	Commitment Letter	1-Nov-24	31-Oct-24
	1.4	N/A	N/A	Commitment Letter	1-Nov-24	31-Oct-24
	6.8	N/A	N/A	Commitment Letter	1-Sep-25	31-Aug-24
	3.3	N/A	N/A	Commitment Letter	1-Nov-25	31-Oct-25
	0.1	N/A	N/A	Commitment Letter	1-Nov-26	31-Oct-26
	1.7	N/A	N/A	Commitment Letter	1-Nov-27	31-Oct-27

Distribution Contract Total (TJ/day)	63.1
Letter of Indemnity Total (TJ/day)	22.1
Commitment Letter Total (TJ/day)	82.2
Total Commitments (TJ/day)	**167.3**

NOTE:
*If a CL expires, or if the estimated in-service date cannot be met, the CL is expected to be renewed with the customer with a revised in-service date.

ENBRIDGE GAS INC.

Undertaking Response to PP

To file IRP-related information filed at panhandle region stakeholder outreach session

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Response:

Please see Attachments 1 and 2 to this response.

AECOM

Panhandle Regional Expansion Project

Virtual Information Session #2

ENBRIDGE

Welcome to the Panhandle Regional Expansion Project

Virtual Information Session #2

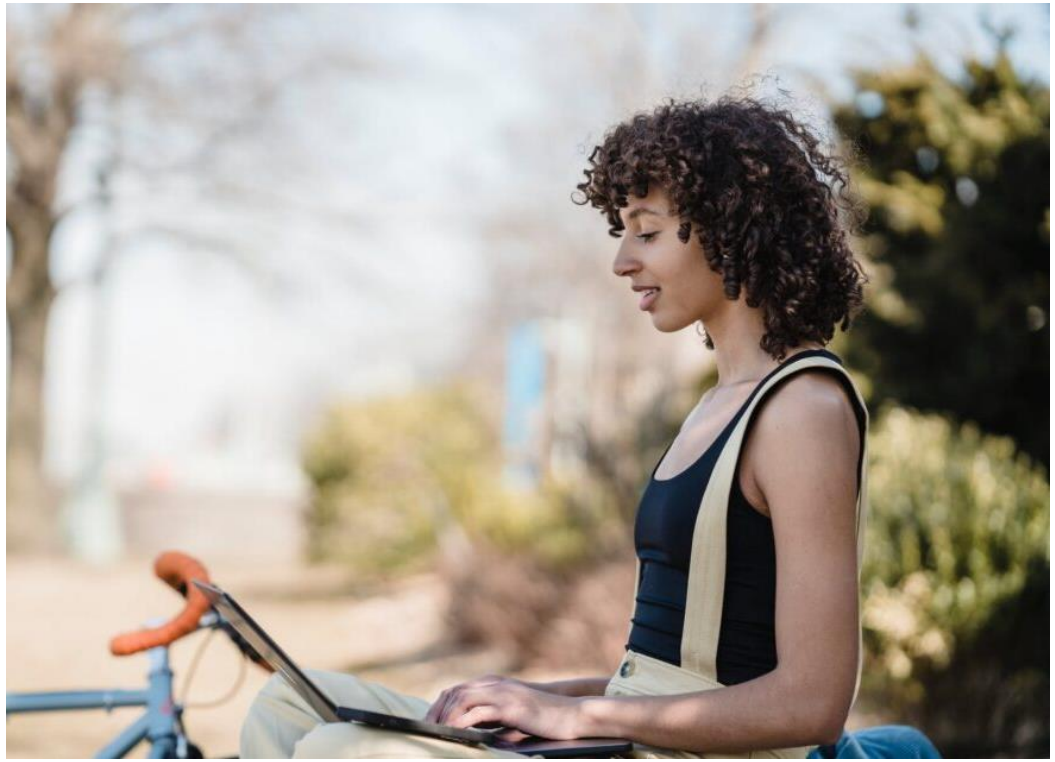
- This virtual information session is open from February 14 to February 28, 2022.
- Explore the website for more detailed information.
- Fill out the comment form by February 28, 2022, where you can also submit questions, comments and sign-up to receive future Project updates.
- Download the full presentation here.
- Review the pipeline routes on the interactive mapping tool.

Our Commitment

- Enbridge Gas provides safe and reliable delivery of natural gas to more than 3.8 million residential, commercial, and industrial customers across Ontario.
- Enbridge Gas will carefully consider all input. They are committed to involving community members and will provide up-to-date information in an open, honest and respectful manner.
- Enbridge Gas is committed to environmental stewardship and conducts all of its operations in an environmentally responsible manner.

Purpose of Virtual Information Session

- Provide an update on the Project, including the assessment of alternatives that resulted in the selected preferred routes for the transmission pipelines and the introduction of the preliminary preferred routes for the distribution pipelines.
- Provide a safe alternative to an in-person meeting.
- Inform landowners, Indigenous communities, municipalities, stakeholders, and regulatory authorities about the Panhandle Regional Expansion Project and gather feedback about the assessment and selection of the transmission and distribution pipeline routes.
- Give everyone the chance to participate in the process to complete the Environmental Report, which will be included in the Ontario Energy Board application.
- Provide an opportunity to identify any unknown constraints and review draft plans to mitigate impacts to the local community and the environment.
- Create a space for you to ask questions and / or provide comments to Enbridge Gas or AECOM.



Panhandle Regional Expansion Project

The Panhandle Transmission System serves residential, commercial, industrial, greenhouse and power generation customers across Southwestern Ontario. In order to accommodate additional demand for affordable and reliable natural gas in Windsor, Essex County and Chatham-Kent, Enbridge Gas is proposing to increase the capacity of the system via the Panhandle Regional Expansion Project. This Project will address the current and future growth needs of the local area.

Indigenous People Policy

- Enbridge Gas recognizes the diversity of Indigenous Peoples who live where we work and operate. They understand from history the destructive impacts on the social and economic wellbeing of Indigenous Peoples. Enbridge Gas recognizes and realizes the importance of reconciliation between Indigenous communities and the broader society. Positive relationships with Indigenous Peoples, based on mutual respect and focused on achieving common goals, will create positive outcomes from Indigenous communities. Enbridge Gas commits to pursue sustainable relationships with Indigenous Nations and groups in proximity to where Enbridge Gas conducts business. To achieve this, Enbridge Gas will govern itself by the following principles:
  - Enbridge Gas recognizes the legal and constitutional rights of Indigenous Peoples, and the importance of the relationships between Indigenous Peoples and their traditional lands and resources. They commit to working with Indigenous communities in a manner that recognizes and respects those legal and constitutional rights and the traditional lands and resources to which they apply. Enbridge Gas commits to ensuring that Enbridge Gas projects and operations are carried out in an environmentally responsible manner.
  - Enbridge Gas understands the importance of the United Nations Declaration of the Rights of Indigenous Peoples in the context of existing Canadian law and the commitments that the government has made to protecting the rights of Indigenous Peoples.

Indigenous People Policy

- Enbridge Gas engages in forthright and sincere consultation with Indigenous Peoples about their projects and operations through processes that seek to achieve early and meaningful engagement. Indigenous engagement helps define projects that may occur on lands traditionally occupied by Indigenous Peoples.
- Enbridge Gas commits to working with Indigenous Peoples to achieve benefits for them resulting from Enbridge Gas' projects and operations, including opportunities in training and education, employment, procurement, business development, and community development.
- Enbridge Gas fosters an understanding of the history and culture of Indigenous Peoples among their employees and contractors, in order to create better relationships between Enbridge Gas and Indigenous communities.
- The commitment is a shared responsibility involving Enbridge Gas and its affiliates, employees and contractors. They will conduct business in a manner that reflects the above principles. Enbridge Gas will provide ongoing leadership and resources to effectively implement the above principles, including the development of implementation strategies and specific action plans. Enbridge Gas commits to periodically review this policy so that it remains relevant and respects Indigenous culture and varied traditions.

Environment, Health and Safety Policy

Enbridge Gas' commitment

- Enbridge Gas is committed to protecting the health and safety of all individuals affected by our activities.
- Enbridge Gas will provide a safe and healthy working environment and will not compromise the health and safety of any individual.
- Enbridge Gas' goal is to have no incidents and mitigate impacts on the environment by working with stakeholders, peers, and others to promote responsible environmental practices and continuous improvement.
- Enbridge Gas is committed to environmental protection and stewardship and we recognize that pollution prevention, biodiversity and resource conservation are key to a sustainable environment.
- All employees are responsible and accountable for contributing to a safe working environment, for fostering safe working attitudes, and for operating in an environmentally responsible manner.

AECOM's commitment

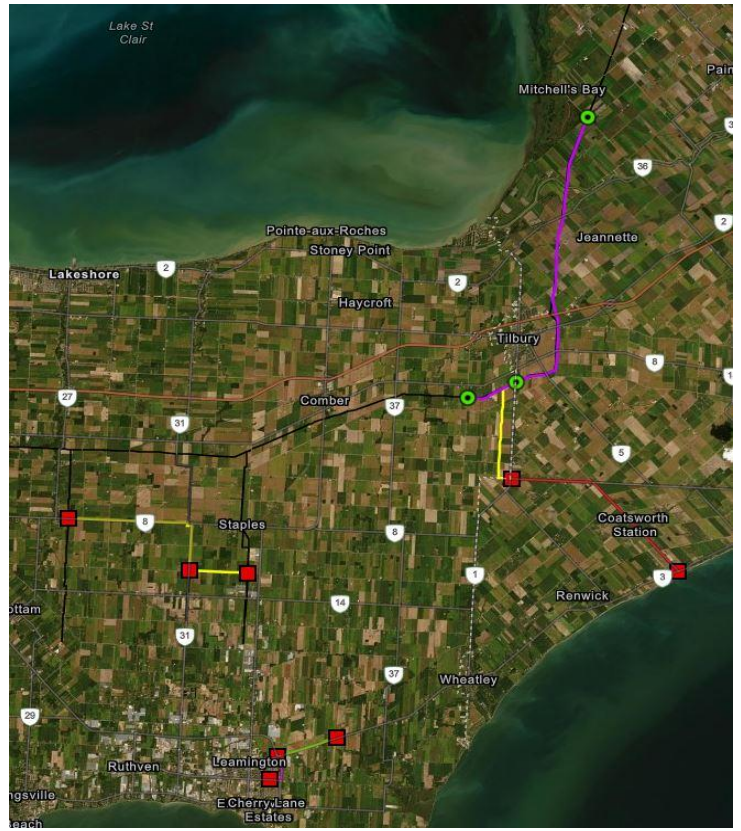
- "Safety for Life" defines AECOM's commitment to achieving zero work-related injuries and / or illnesses; preventing damage to property and the environment; and maintaining an environmentally friendly and sustainable workplace.
- AECOM has adopted "Life Preserving Principles" to help demonstrate the commitment of AECOM's Safety for Life program.

Integrated Resource Planning (IRP)

- As the energy landscape continues to evolve, there is a growing interest in low-carbon alternatives to meet energy needs.
- IRP is a framework through which Enbridge Gas reviews alternative approaches to meeting energy needs, before building new infrastructure such as:
  - Delivering more energy without adding new pipelines using liquefied or compressed natural gas.
  - Lowering energy use through effective energy efficiency programs.
  - Displacing conventional natural gas with carbon-neutral renewable natural gas and hydrogen.
- As Enbridge Gas continues to lead the transition to a low-carbon future, they are dedicated to exploring IRP alternatives where they are in the best interest of communities, the environment and the company, while considering safety and reliability, cost-effectiveness, optimization, risk management and public policy.

Proposed Transmission Pipelines

- **Panhandle Loop:** Approximately 19 km of new pipeline which loops – or parallels – the existing 20-inch Panhandle Pipeline. The new pipeline will be 36 inches in diameter and located adjacent to an existing pipeline corridor between Richardson Side Road in the Municipality of Lakeshore, and Enbridge Gas' existing Dover Transmission Station in the Municipality of Chatham-Kent.
- **Leamington Interconnect:** Approximately 12 km of new pipeline, 16 inches in diameter, adjacent to or within an existing road allowance on public or private property to connect the existing Leamington North Lines to both the Kingsville East Line and the Leamington North Reinforcement Line, located in the Municipality of Lakeshore, Town of Kingsville and Municipality of Leamington.



View the interactive mapping tool

Proposed Distribution Pipelines

- **Talbot Road Reinforcement:** Construction of a new distribution pipeline up to 8 inches in diameter travelling adjacent to or within an existing road allowance, on public or private property along Talbot Road East in the Municipality of Leamington. The pipeline will be approximately 3.2 km in length.
- **Oak Street and Essex Road 33 Reinforcement:** Construction of a new distribution pipeline up to 6 inches in diameter travelling adjacent to or within existing road allowances on public or private property along Oak Street East and County Road 33 in the Municipality of Leamington. The pipeline will be approximately 1.9 km in length.
- **Wheatley Lateral Reinforcement (formerly Wheatley Interconnect):** Construction of a new distribution pipeline up to 8 inches in diameter starting from Enbridge Gas' Wheatley Road station and travelling west then south in an easement on private property to Goodreau Line. The pipeline will then travel east to a new proposed station at the intersection of Wheatley Road and Goodreau Line (preferred route). From this location, the new distribution line will travel east along Goodreau Line before turning southeast on Coatsworth Road to Talbot Trail (preliminary preferred route). The pipeline will be approximately 16.1 km in length and all new pipelines on Goodreau Line and Coatsworth Road would either travel adjacent to or within existing road allowances on public or private property. The pipeline will be located in the Municipality of Lakeshore and Municipality of Chatham-Kent.

View the interactive mapping tool

If approved by the Ontario Energy Board, construction of the proposed transmission and distribution pipelines is planned to begin as early as Spring 2023 and is proposed to be in service by Fall 2023.

Environmental Report Process

- The environmental study and Environmental Report will be completed as per the Ontario Energy Board's "Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (2016)."

The study will:

- Undertake consultation to understand the views of interested and potentially impacted parties.
- Consult with Indigenous communities to understand interests and potential impacts.
- Be conducted during the earliest phase of the Project.
- Present pipeline routing options and outline the evaluation process to select preferred pipeline routes.
- Identify potential impacts of the Project.
- Develop environmental mitigation and protective measures to avoid or minimize potential impacts.
- Develop an appropriate environmental inspection, monitoring and follow-up program.

Ontario Energy Board (OEB) Review and Approval Process

- An OEB Leave-to-Construct application and approval is required in order for the Project to proceed. The OEB is Ontario's independent regulator of the electricity and natural gas sectors who protect consumers and makes decisions that serve the public interest.
- The application to the OEB will include information on the Project including:
  - The need for the Project;
  - Environmental Report and mitigation measures;
  - Facility alternatives;
  - Project costs and economics;
  - Pipeline design and construction;
  - Land requirements; and
  - Consultation with Indigenous communities.

The OEB will then hold a public hearing to review the Project. If the OEB determines that the Project is in the public interest it will approve construction of the Project.

Additional information about the OEB process can be found at: www.oeb.ca

Preferred Route Selection Process

The preferred routes will be selected and confirmed through a five-step process.

Step 1:

Develop Routing Parameters

- Establish a study area.
- Establish routing objectives. For example:
  - Follow a reasonably direct path between start and end points.
  - Avoid sensitive environmental and socio-economic features, where possible.
  - Parallel (loop) existing linear infrastructure.
  - Follow existing lot and property lines.
- Create an inventory of environmental and socio-economic features.

Step 2:

Identify Alternative Routes in the Study Area

- Identify reasonable and feasible routes within the study area in consideration of the routing objectives and environmental and socio-economic opportunities and constraints.

Preferred Route Selection Process

The preferred routes will be selected and confirmed through a five-step process.

Step 3: Route Evaluation

- An evaluation of the Alternative Routes has been conducted to select the preliminary preferred routes. The evaluation was based on:
  - Field visits and route reviews with environmental, engineering and construction staff;
  - Review of publicly available information about natural heritage features, slope, topography, and socio-economic features and landscapes;
  - A GIS based quantitative evaluation of potential impacts to environmental and socio-economic features; and
  - Early input from municipalities.

Step 4: Seek Input on Preferred and Preliminary Preferred Routes

- Gather feedback on the preferred and preliminary preferred routes.
- Make updates / modifications, as needed.

We are here

Step 5: Confirmation of Routes and Completion of Environmental Report

- The pipeline routes will be confirmed and analyzed in the Environmental Report, which will consider feedback received at this virtual information session. The location of the preferred pipeline routes may be refined as the Project moves forward based on pre-construction field investigations, landowner requests, and / or engineering and construction considerations.

Transmission Pipeline Route Evaluation

Methodology

During virtual information session #1, a Preliminary Preferred Route for the Panhandle Loop and a Preliminary Preferred and two alternative routes were presented for the Leamington Interconnect. These routes have since been confirmed as Preferred Routes. These routes were selected as preferred using quantitative and qualitative methods.

Quantitative

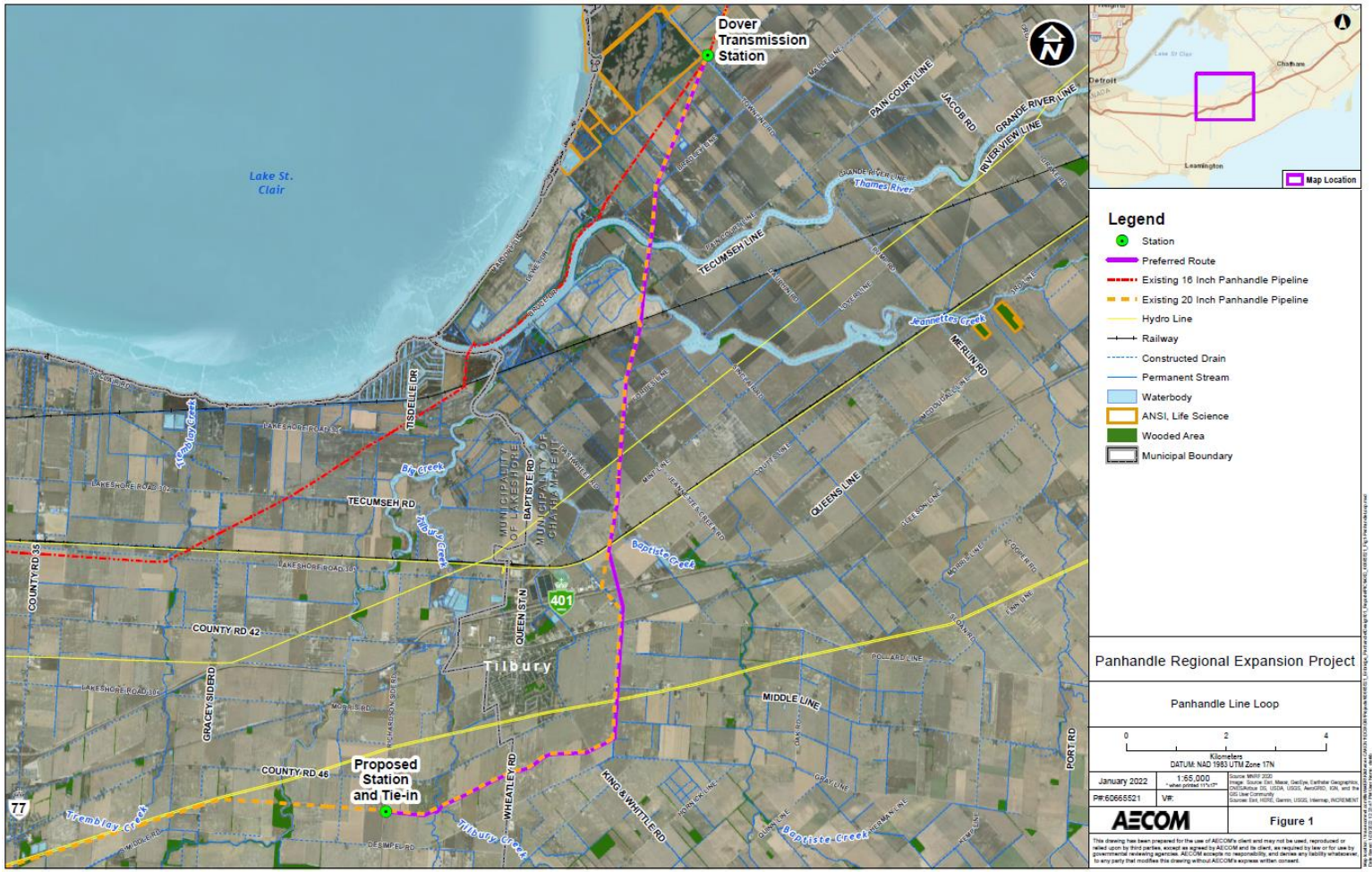
A Geographic Information System (GIS), a computer-base mapping system, was used to determine the impacts of the preliminary preferred and alternative routes on a number of different categories, including: agricultural, aquatics, route characteristics, socio-economic, terrestrial features and groundwater resources.

Qualitative

A review of the comments received to date from the interested and potentially affected parties, and the experience of the Project Team in routing linear infrastructure.

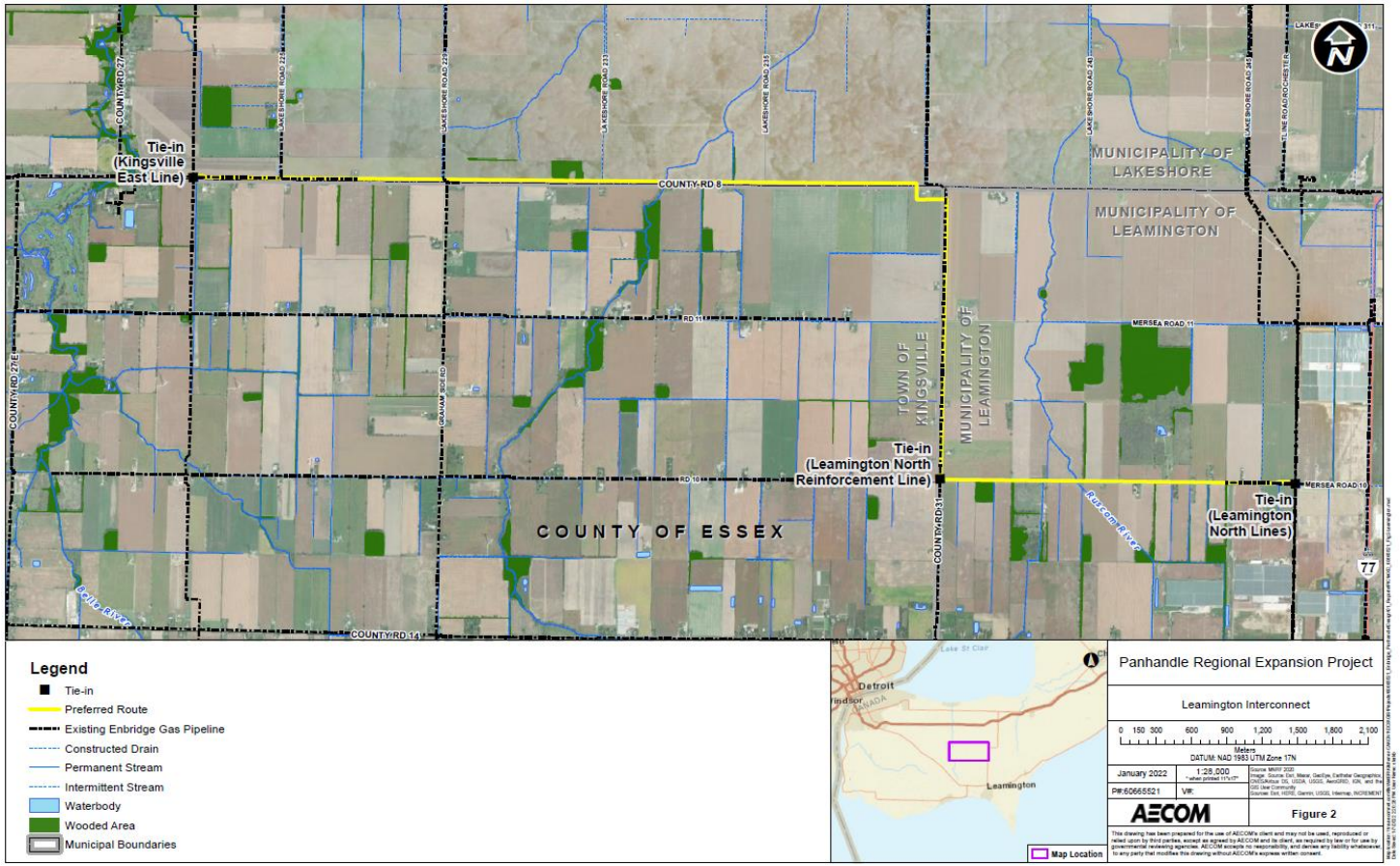
Preferred Route: Panhandle Loop

- New natural gas pipeline 36 inches in diameter and 19 km in length.
- Route will loop – or parallel – the existing 20-inch Panhandle Pipeline located between Richardson Side Road and Enbridge Gas' Dover Transmission Station.
- Key considerations for selecting the preferred route:
  - The route parallels an existing pipeline right-of-way (RoW).
  - It leverages an existing Enbridge Gas RoW, allowing for overlapping easements and reducing disturbance to new properties and farms.
  - A technically viable route avoids introduction of new environmental and social impacts to habitats and properties in the area.
  - Installation of the existing pipeline occurred with no long-term impacts to the environment.



Preferred Route: Leamington Interconnect

- New natural gas pipeline 16 inches in diameter and 12 km in length connecting the existing Leamington North Lines to both the Kingsville East Line and the Leamington North Reinforcement Line.
- Located adjacent to or within an existing road allowance on public or private property.
- Key considerations for selecting the preferred route:
  - The route parallels existing road allowances and utilities.
  - The route offers the most room for construction and staging due to the slope / topography of the area being flat and there are no deep ditches impacting construction.
  - It has the least direct impacts to homes, utilities, traffic and local access.



Transmission Pipeline Route Evaluation

Features	Leamington Preliminary Preferred Route	Leamington Alternative Route 1	Leamington Alternative Route 2
Potential Impacts to Agricultural Features			
Prime Agricultural Land (ha)	120	109	95
Tile Drainage (ha)	84	78	69
Potential Impacts to Aquatic Features			
Conservation Authority Regulated Lands (ha)	54	39	31
Watercourse / Drain Crossings	9	9	10
Watercourses with Identified SAR	0	0	0
Route Characteristics			
Length (m)	11,982	10,748	9,407
Slope (m)	<5	<5	<5
Potential Impacts to Socio-Economic Features			
Archaeological Sites (within 1 km of the route)	0	0	1
Homes (#)	7	23	17
Petroleum Wells (# within 250 m)	0	0	0
Socio-economic Features (schools, churches, community centres (# within 1 km))	1 recreational centre, 1 cemetery, 1 golf course	1 recreational centre and 1 golf course	0

Transmission Pipeline Route Evaluation Continued

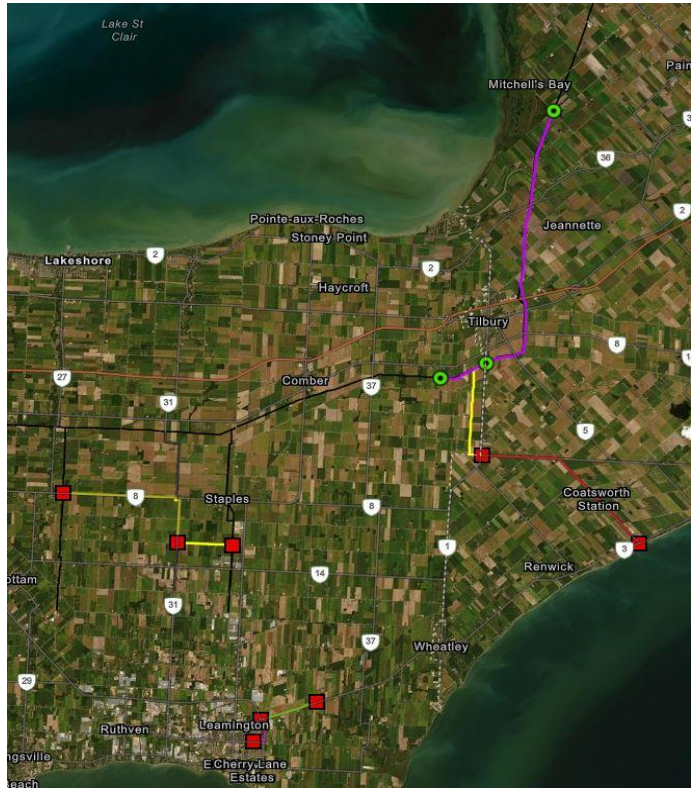
Features	Leamington Preliminary Preferred Route	Leamington Alternative Route 1	Leamington Alternative Route 2
Potential Impacts to Terrestrial Features			
ANSI (ha)	0	0	0
Wooded Areas (ha)	2	2	1
Wetlands (Provincially / Locally Significant)	0	0	0
Potential Impacts to Groundwater Resources			
Water Wells (within 100 m)	19	20	15
Overall Route Evaluation	***Preferred***	***Moderately Preferred***	***Least Preferred***
	• Although this route has the potential to impact the most agricultural and natural environmental features, it reduces disturbance to homes (impacts 7) and farm operations in the area by running parallel to existing road allowances and utilities. • Most room within road allowance to allow for feasibility of construction and staging. ○ Slope / topography is flat and there are no deep ditches impacting construction. • Less watercourse / drain crossings than Leamington Alternative Route 2. • Less water wells than Leamington Alternative Route 1. • Route does not impact any known archaeological sites.	• Less watercourse / drain crossings and known archaeological sites than Leamington Alternative Route 2. • Current road allowance is narrow and does not have adequate room for construction. • Potential impacts to homes (23) and farm operations. • Impacts more agricultural and natural environment features than Leamington Alternative Route 2.	• Although this alternative impacts the most watercourses / drain crossings, it is the shortest route and crosses less wooded areas, prime agricultural land, tile drainage, and conservation authority regulated land. • Current road allowance is very narrow with steep slopes on either side and existing utilities make feasibility of construction a challenge. • Potential impacts to homes (17) and farm operations.

Proposed Distribution Pipelines

As noted at the first virtual information session, Enbridge Gas is proposing to construct distribution pipelines to connect new large-volume customers to the Panhandle Transmission System. Distribution pipelines are being proposed at several locations based on customer needs.

It should be noted that portions of the Wheatley Interconnect that were presented at virtual information session #1 now form part of the distribution pipelines being proposed and has since been confirmed as a preferred route.

The evaluation of these routes will include feedback gathered from this virtual information session and will be included in the Environmental Report, which can be reviewed and commented on during the Ontario Energy Board's approval process.

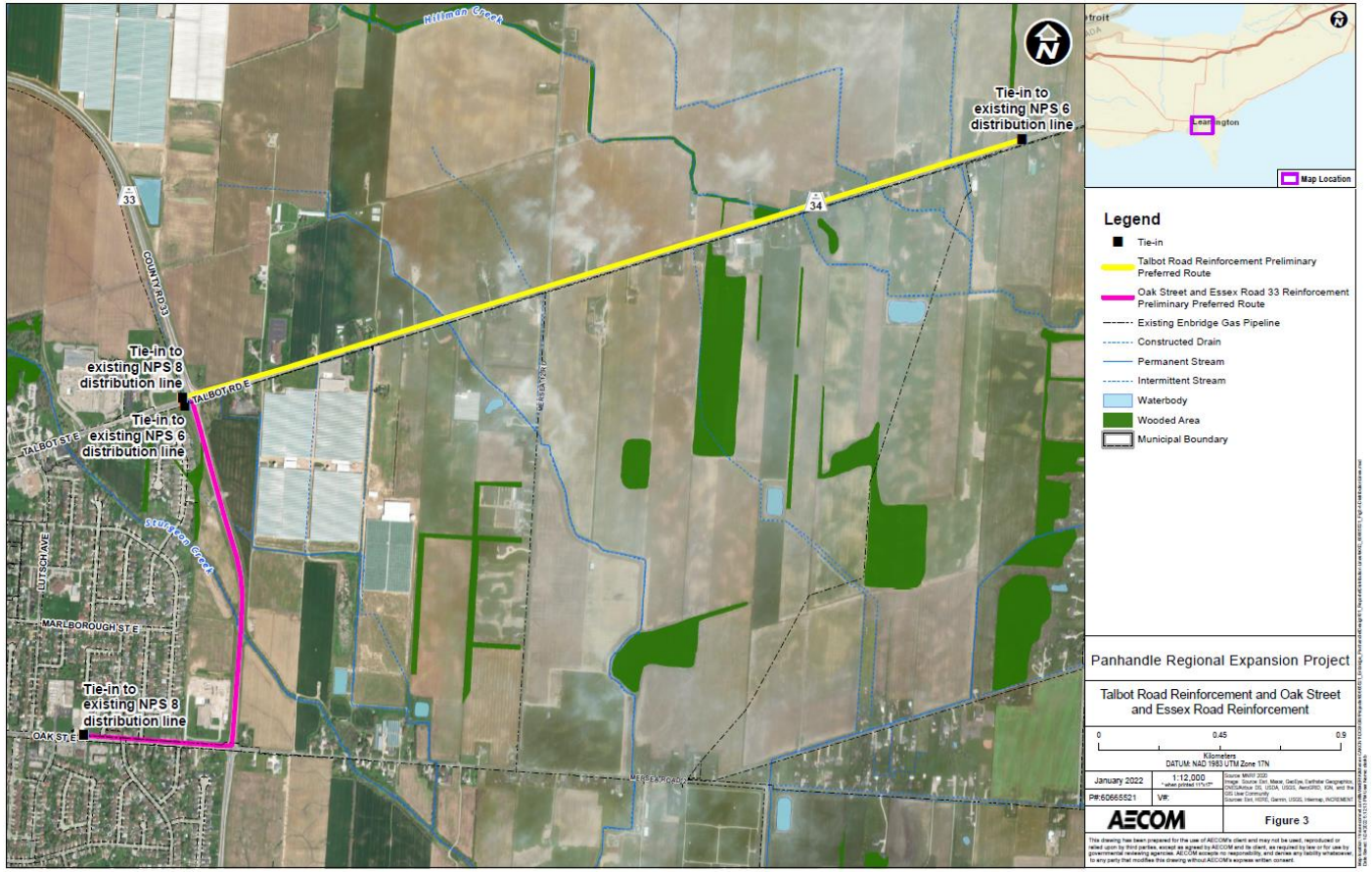


View the interactive mapping tool

Talbot Road and Oak Street and Essex Road 33 Reinforcements

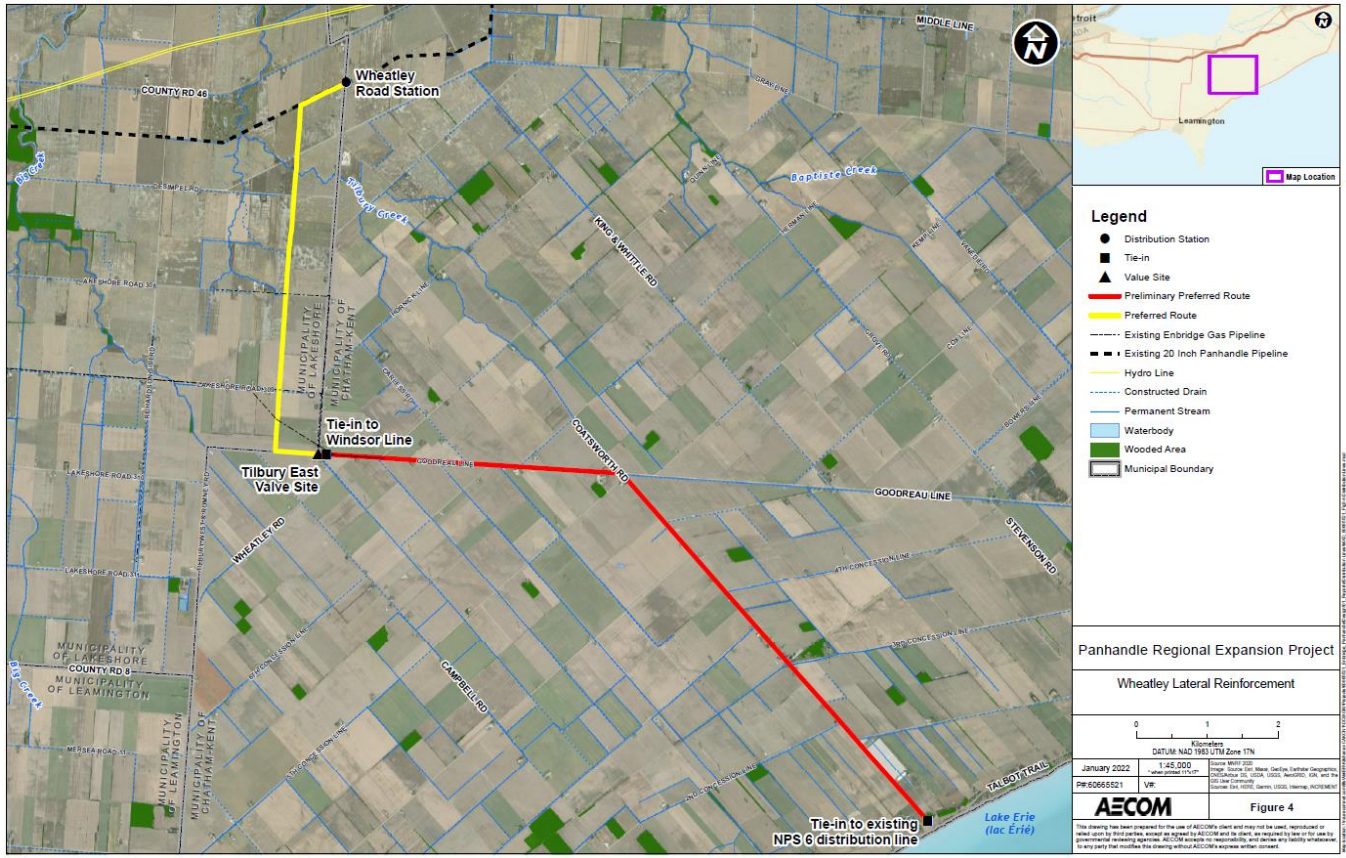
- **Talbot Road Reinforcement**: New distribution pipeline up to 8 inches in diameter and 3.2 km in length.
- Located adjacent to or within an existing road allowance on public or private property.
- **Oak Street and Essex Road 33 Reinforcement**: New distribution pipeline up to 6 inches in diameter and 1.9 km in length.
- Located adjacent to or within existing road allowances on public or private property.

The routes have been selected as they are the most direct routes using road allowances.



Wheatley Lateral Reinforcement

- New pipeline up to 8 inches in diameter and 16.1 km in length.
- Preferred Route (yellow line, 6 km in length)
  - Presented as Wheatley Interconnect in virtual information session #1.
  - Located in an easement on private property that is parallel to Wheatley Road.
  - Key considerations for selecting the preferred route:
    - Upon consultation with the municipalities, Wheatley Road cannot accommodate a pipeline due to existing utilities.
    - Route avoids the need for lane closures and traffic disruption on Wheatley Road, a main artery into the Town of Wheatley.
- Preliminary Preferred Route (red line, 10.1 km in length)
  - Located adjacent to or within existing road allowances on public or private property.
  - The route has been selected as it is the most direct route using road allowances.



Agricultural Soils and Maintaining Agricultural Drainage Systems

- The Project will be constructed, in part, on agricultural land within the Project study area.

Potential Effects

- Damaged and severed tile drains.
- Subsoil mixing, compaction, and rutting.
- Loss of organic matter / degraded soil structure.
- Decreased soil quality / agricultural capability.
- Erosion.
- Temporary drainage issues.
- Spread of soil pests / diseases.

Example Mitigation Measures

- Enbridge Gas will develop and implement a sampling program on agricultural easements along the pipeline route for potential pests and / or diseases that are known to the area, where appropriate.
- The entire outside boundaries of the work space necessary for construction of the Project will be staked at regular intervals.
- Landowners will be contacted prior to construction to confirm the location and type of existing drains. Any future drainage plans will also be discussed.
- Field tile will be temporarily re-routed during pre-construction activities where required to ensure proper drainage during construction.
- Construction activities will be temporarily halted on agricultural lands where excessively wet soil conditions are encountered.
- Damaged and severed drains will be repaired following construction. After repair and prior to backfilling, landowners will be invited to inspect and approve the repair. Any on-going field tile issues resulting from pipeline construction will be addressed by Enbridge Gas as required.
- A post-construction cover crop program will be available to landowners.

Socio-Economic Considerations

- The Project will be constructed parallel to existing road allowances on private property, agricultural land, land regulated by Hydro One, Lower Thames Valley Conservation Authority and Essex Region Conservation Authority.

Potential Effects

- Temporary increases in noise, dust and air emissions.
- Increased construction traffic volumes.
- Temporary impairment of use and enjoyment of property.
- Vegetation clearing along the pipeline easement.

Example Mitigation Measures

- Access to residences, businesses and farm fields will be maintained during construction.
- Construction will be restricted to daylight hours and adhere to applicable noise by-laws.
- A Traffic Control Plan will be developed if potential disruption to traffic could occur.
- Fencing will be placed at appropriate locations to limit access to the work area.
- A water well monitoring program will be developed.
- Measures will be implemented to control dust during construction.
- Areas cleared for construction will be re-vegetated.
- A designated Enbridge Gas representative will be available prior to and throughout construction.

Aquatic Resource Considerations

- Enbridge Gas understands the importance of protecting wildlife during construction and therefore will implement recognized mitigation measures to minimize possible environmental effects.

Potential Effects

- Disruption and alternation to aquatic species and habitat and / or nuisance effects.
- Increased erosion, sedimentation, and turbidity resulting from removal of vegetation.

Example Mitigation Measures

- Conduct surveys for waterbodies to assess potential impacts to aquatic species / habitat.
- Obtain all agency permits and approvals, including development of environmental mitigation measures for site specific habitat / species.
- Limit in-channel construction, where possible, and conform to fish timing window guidelines.
- If in-channel construction is required, protect aquatic species and manage sedimentation and turbidity.
- Restore and seed areas to establish habitat and reduce erosion.
- Replant vegetation along waterways as soon as possible following construction.

Terrestrial Resource Considerations

- During the course of construction, natural heritage features such as wildlife habitat and vegetated / wooded areas will need to be crossed.

Potential Effects

- Damage or removal of vegetation and wildlife habitat adjacent to the construction area.
- Disturbance and / or mortality to local wildlife.

Example Mitigation Measures

- Conduct surveys (including Species at Risk surveys) in advance of construction to determine opportunities for wildlife habitat to exist. If present, develop species / habitat specific environmental mitigation measures.
- Secure any necessary permits and follow any conditions of approval.
- Clearly mark the construction area to avoid accidental damage.
- Restore and seed areas to establish habitat and reduce erosion.

Cultural Heritage and Archaeology Considerations

- During the course of construction, cultural heritage and archaeology features such as archaeological finds, buildings, fences and landscapes may be encountered. Detailed field surveys will be conducted by independent, third-party archaeologists and cultural heritage professionals.

Potential Effects

- Damage or destruction of archaeological, paleontological or historical resources.

Example Mitigation Measures

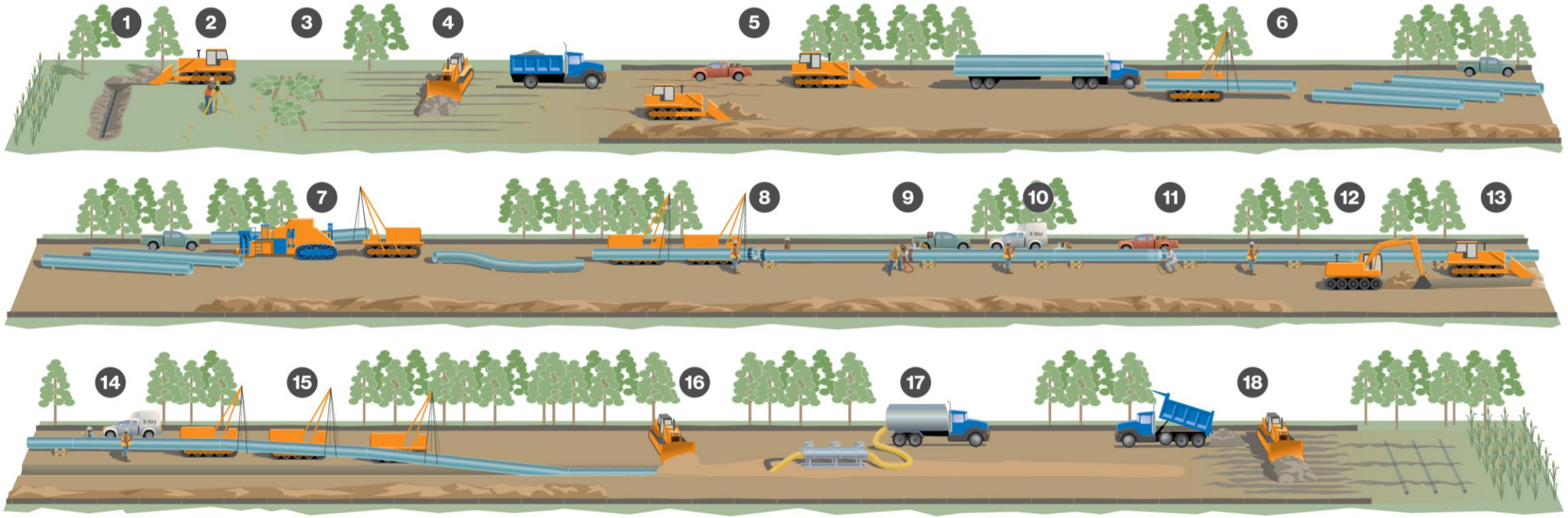
- Complete archaeological assessments of the construction right-of-way, with review and comment from the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI).
- Complete cultural heritage assessments (for built heritage features and cultural heritage landscapes) of the construction right-of-way, with review and comment from MHSTCI.
- Report any previously unknown archaeological, paleontological or historical resources uncovered, or suspected of being uncovered, during excavation.

Access and Land Requirements

- Once a preferred route is selected, an Enbridge Gas Land Agent will begin discussions with landowners for the appropriate land rights necessary for the construction of the pipeline.
- Enbridge Gas is committed to working with all directly affected landowners in anticipation of acquiring early access agreements, where necessary, in order to gather essential information, including but not limited to, land survey data, environmental, archaeological and property site features, along with negotiating the necessary land rights.
- These land rights will consist of permanent easements and / or temporary land rights. The temporary land rights are only required during Project construction activities.
- Enbridge Gas will have a Land Agent available to each landowner during all pipeline construction activities.
- The Land Agent will keep all landowners informed of the progress of the Project and assist with any concerns that may arise as a result of the construction activities.

AECOM

General Construction Overview



1. Pre-construction tiling
2. Surveying and staking
3. Clearing
4. Right-of-way topsoil stripping
5. Front-end grading
6. Stringing pipe
7. Field bending pipe
8. Lining-up pipe
9. Welding process
10. X-ray or ultrasonic inspection, weld repair
11. Field coating
12. Digging the trench
13. Padding trench bottom
14. Final inspection and coating repair
15. Lowering pipe
16. Backfilling
17. Hydrostatic testing
18. Site restoration and post-construction tiling

ENBRIDGE

General Construction Overview

Site preparation (1-5)
- Survey and staking crews will delineate project boundaries and install safety fencing, where required.
- The construction team will clear brush and other vegetation to permit construction.
- A grading crew prepares the construction area for access by construction equipment.

Installing the new pipeline (6-16)
- Once area has been prepped, a hydraulic hoe will excavate the trench, which will then be prepared for the installation of the new pipeline.
- The stringing crew lays pipe on wooden skids or boxes adjacent to trench area.
- The pipe is prepped, welded into continuous lengths and inspected before the pipeline is lowered into the trench. Crews also install pipes under obstacles such as roads or watercourses by directional drilling.

Finishing construction (17-18):
- The pipeline is tested hydrostatically with water from a suitable local source and is disposed of appropriately. Upon completion, the pipeline is dried, purged of air and prepared for delivery of the product.
- The construction crew backfills the originally excavated subsoil over the pipe in the trench. Any surplus backfill material will be removed from the construction area.
- A clean-up crew is responsible for the restoration of the land. In natural areas, restoration includes re-seeding and removing erosion and sediment controls. In developed areas the clean-up crew undertakes landscaping plans developed for site restoration.

Next Steps

Enbridge Gas will evaluate the feedback received from the virtual information session, make updates as required and finalize the pipeline route evaluation. The final evaluation will be included in the Environmental Report (ER), which will be completed in early 2022. You will have the opportunity to review and provide feedback on the ER by signing up to receive future Project information.

Project Schedule

2021

- Start the environmental planning process.
- Evaluate potential pipeline routes.
- Virtual information session #1.

2022

- Virtual information session #2.
- Complete ER.
- Complete Ontario Energy Board application and obtain approval.
- Finish permitting, pipeline design and construction planning.

We are here

2023+

- Construction.
- Pipeline in service.
- Site cleanup and restoration and post-construction monitoring.

Thank you!

Thank you for participating in virtual information session #2. If you have feedback or comments, please complete the comment form by February 28, 2022.

Mark Van der Word
Senior Environmental Planner
AECOM
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Hamilton, ON L8E 4W8
Tel: (289) 439-9803
email: panhandle@virtualengagement.ca

For more information about the proposed Project, please visit our Project website at:
www.virtualengagement.ca/panhandle

Panhandle Regional Expansion Project

Virtual Information Session

Welcome

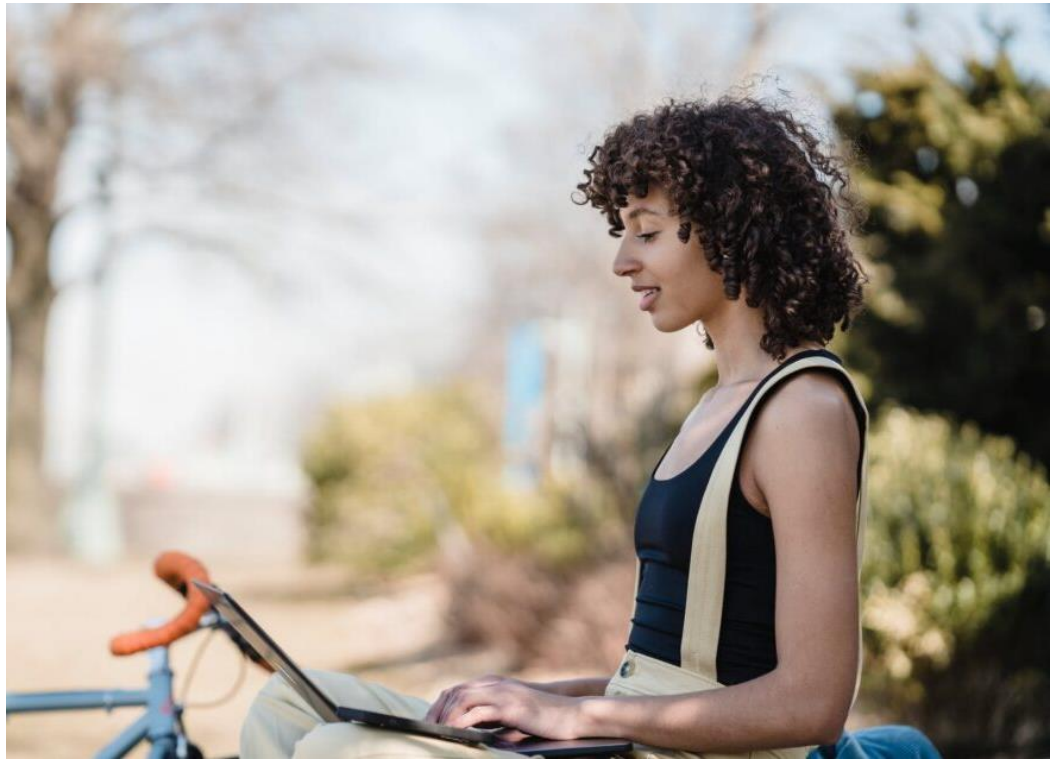
- This virtual information session is open from November 17 to December 3, 2021.
- Watch the short video above to learn about the Project and what's included in this virtual information session.
- Explore the website for more detailed information.
- Fill out the comment form by December 3, 2021, where you can also submit questions, comments and sign-up to receive future Project updates.
- Download the full presentation.
- Review the pipeline routes on the interactive mapping tool.

Our Commitment

- Enbridge Gas provides safe and reliable delivery of natural gas to more than 3.7 million residential, commercial, and industrial customers across Ontario.
- Enbridge Gas will carefully consider all input. They are committed to involving community members and will provide up-to-date information in an open, honest and respectful manner.
- Enbridge Gas is committed to environmental stewardship and conducts all of its operations in an environmentally responsible manner.

Purpose of the Virtual Information Session

- Provide a safe alternative to an in-person meeting.
- Inform landowners, Indigenous communities, municipalities, stakeholders, and regulatory authorities about the Panhandle Regional Expansion Project and gather feedback on the preliminary preferred pipeline routes.
- Give everyone the chance to participate in the process to complete the Environmental Report, which will be included in the Ontario Energy Board application.
- Provide an opportunity to identify any unknown constraints and review draft plans to mitigate impacts to the local community and the environment.
- Create a space for you to ask questions and / or provide comments to Enbridge Gas or AECOM.



Panhandle Regional Expansion Project

The Panhandle Transmission System serves residential, commercial, industrial, greenhouse and power generation customers across Southwestern Ontario. In order to accommodate additional demand for affordable and reliable natural gas in Windsor, Essex County and Chatham-Kent, Enbridge Gas is proposing to increase the capacity of the system via the Panhandle Regional Expansion Project. This Project will address the current and future growth needs of the local area.

Indigenous People Policy

- Enbridge Gas recognizes the diversity of Indigenous Peoples who live where we work and operate. They understand from history the destructive impacts on the social and economic wellbeing of Indigenous Peoples. Enbridge Gas recognizes and realizes the importance of reconciliation between Indigenous communities and the broader society. Positive relationships with Indigenous Peoples, based on mutual respect and focused on achieving common goals, will create positive outcomes from Indigenous communities. Enbridge Gas commits to pursue sustainable relationships with Indigenous Nations and groups in proximity to where Enbridge Gas conducts business. To achieve this, Enbridge Gas will govern itself by the following principles:
  - Enbridge Gas recognizes the legal and constitutional rights of Indigenous Peoples, and the importance of the relationships between Indigenous Peoples and their traditional lands and resources. They commit to working with Indigenous communities in a manner that recognizes and respects those legal and constitutional rights and the traditional lands and resources to which they apply. Enbridge Gas commits to ensuring that Enbridge Gas projects and operations are carried out in an environmentally responsible manner.
  - Enbridge Gas understands the importance of the United Nations Declaration of the Rights of Indigenous Peoples in the context of existing Canadian law and the commitments that the government has made to protecting the rights of Indigenous Peoples.

Indigenous People Policy

- Enbridge Gas engages in forthright and sincere consultation with Indigenous Peoples about their projects and operations through processes that seek to achieve early and meaningful engagement. Indigenous engagement helps define projects that may occur on lands traditionally occupied by Indigenous Peoples.
- Enbridge Gas commits to working with Indigenous Peoples to achieve benefits for them resulting from Enbridge Gas' projects and operations, including opportunities in training and education, employment, procurement, business development, and community development.
- Enbridge Gas fosters an understanding of the history and culture of Indigenous Peoples among their employees and contractors, in order to create better relationships between Enbridge Gas and Indigenous communities.
- The commitment is a shared responsibility involving Enbridge Gas and its affiliates, employees and contractors. They will conduct business in a manner that reflects the above principles. Enbridge Gas will provide ongoing leadership and resources to effectively implement the above principles, including the development of implementation strategies and specific action plans. Enbridge Gas commits to periodically review this policy so that it remains relevant and respects Indigenous culture and varied traditions.

Environment, Health and Safety Policy

Enbridge Gas' commitment

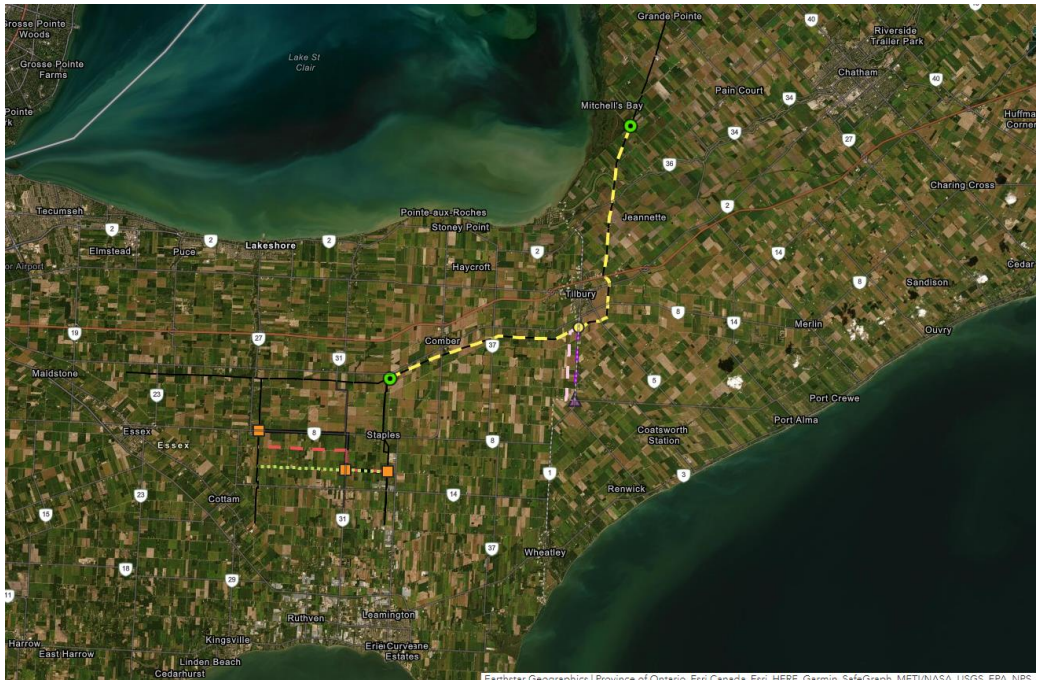
- Enbridge Gas is committed to protecting the health and safety of all individuals affected by our activities.
- Enbridge Gas will provide a safe and healthy working environment and will not compromise the health and safety of any individual.
- Enbridge Gas' goal is to have no incidents and mitigate impacts on the environment by working with stakeholders, peers, and others to promote responsible environmental practices and continuous improvement.
- Enbridge Gas is committed to environmental protection and stewardship and we recognize that pollution prevention, biodiversity and resource conservation are key to a sustainable environment.
- All employees are responsible and accountable for contributing to a safe working environment, for fostering safe working attitudes, and for operating in an environmentally responsible manner.

AECOM's commitment

- "Safety for Life" defines AECOM's commitment to achieving zero work-related injuries and / or illnesses; preventing damage to property and the environment; and maintaining an environmentally friendly and sustainable workplace.
- AECOM has adopted "Life Preserving Principles" to help demonstrate the commitment of AECOM's Safety for Life program.

Proposed Pipelines

- Panhandle Loop: 23 km of new natural gas pipeline which loops – or parallels – the existing 20-inch Panhandle Pipeline located between Enbridge Gas' Comber Transmission Station, located in the Municipality of Lakeshore, and its Dover Transmission Station, located in the Municipality of Chatham-Kent. The new pipeline will be up to 42-inches in diameter and is proposed to be located adjacent to an existing pipeline.
- Leamington Interconnect: Construction of a new pipeline up to 16 inches in diameter adjacent to or within an existing road allowance on public or private property to connect the existing Leamington North Lines to both the Kingsville East Line and the Leamington North Reinforcement Line. The pipeline will be 12 km in length and would be located in both the Municipality of Lakeshore and Municipality of Leamington.

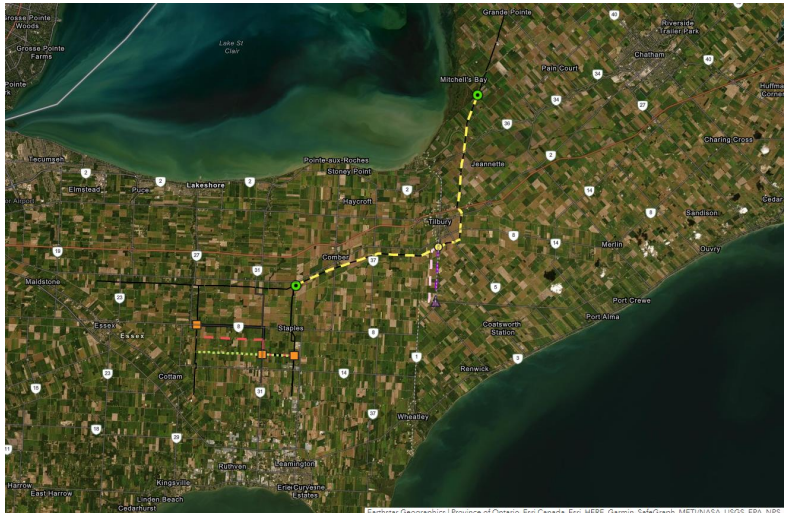


Click here to view the interactive mapping tool.

Proposed Pipelines

- Wheatley Interconnect: Construction of a new pipeline up to 16 inches in diameter to connect the Tilbury East Valve Site to the Wheatley Road Station on public and private property adjacent to or within an existing road allowance. The pipeline will be 6 km in length and would be located within the Municipality of Chatham-Kent and the Municipality of Lakeshore.
- Distribution Pipelines: Enbridge Gas will construct several distribution pipelines connecting new large-volume customers to the Panhandle Transmission System. Design and location of these pipelines is subject to individual customer commitments. Enbridge Gas will share further details on these pipelines at a later date.

If approved by the Ontario Energy Board, construction of the proposed pipelines is planned to begin as early as Spring 2023 and is proposed to be in service by Fall 2023.



Click here to view the interactive mapping tool.

Integrated Resource Planning (IRP)

- As the energy landscape continues to evolve, there is a growing interest in low-carbon alternatives to meet energy needs.
- IRP is a framework through which Enbridge Gas reviews alternative approaches to meeting energy needs, before building new infrastructure such as:
  - Delivering more energy without adding new pipelines using liquefied or compressed natural gas.
  - Lowering energy use through effective energy efficiency programs.
  - Displacing conventional natural gas with carbon-neutral renewable natural gas and hydrogen.
- As Enbridge Gas continues to lead the transition to a low-carbon future, they are dedicated to exploring IRP alternatives where they are in the best interest of communities, the environment and the company, while considering safety and reliability, cost-effectiveness, optimization, risk management and public policy.

Environmental Report Process

- The environmental study and Environmental Report will be completed as per the Ontario Energy Board's 'Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (2016)."

The study will:

- Undertake consultation to understand the views of interested and potentially impacted parties.
- Consult with Indigenous communities to understand interests and potential impacts.
- Be conducted during the earliest phase of the Project.
- Present pipeline routing options and outline the evaluation process to select preferred pipeline routes.
- Identify potential impacts of the Project.
- Develop environmental mitigation and protective measures to avoid or minimize potential impacts.
- Develop an appropriate environmental inspection, monitoring and follow-up program.

Ontario Energy Board (OEB) Review and Approval Process

- An OEB Leave-to-Construct application and approval is required in order for the Project to proceed. The OEB is Ontario's independent regulator of the electricity and natural gas sectors who protect consumers and makes decisions that serve the public interest.
- The application to the OEB will include information on the Project including:
  - The need for the Project;
  - Environmental Report and mitigation measures;
  - Facility alternatives;
  - Project costs and economics;
  - Pipeline design and construction;
  - Land requirements; and
  - Consultation with Indigenous communities.

The OEB will then hold a public hearing to review the Project. If the OEB determines that the Project is in the public interest it will approve construction of the Project.

Additional information about the OEB process can be found at: www.oeb.ca

Preferred Route Selection Process

The preferred routes will be selected through a five-step process.

Step 1:

Develop Routing Parameters

- Establish a study area.
- Establish routing objectives. For example:
  - Follow a reasonably direct path between start and end points.
  - Avoid sensitive environmental and socio-economic features, where possible.
  - Parallel (loop) existing linear infrastructure.
  - Follow existing lot and property lines.
- Create an inventory of environmental and socio-economic features.

Step 2:

Identify Alternative Routes in the Study Area

- Identify reasonable and feasible routes within the study area in consideration of the routing objectives and environmental and socio-economic opportunities and constraints.

Preferred Route Selection Process

The preferred routes will be selected through a five-step process.

Step 3: Route Evaluation

- An evaluation of the Alternative Routes has been conducted to select the preliminary preferred routes. The evaluation was based on:
  - Field visits and route reviews with environmental, engineering and construction staff;
  - Review of publicly available information about natural heritage features, slope, topography, and socio-economic features and landscapes;
  - A GIS based quantitative evaluation of potential impacts to environmental and socio-economic features; and
  - Early input from municipalities.

Step 4: Seek Input on Preliminary Preferred Routes

- Gather feedback on the alternatives and preliminary preferred routes.
- Make updates / modifications, as needed.

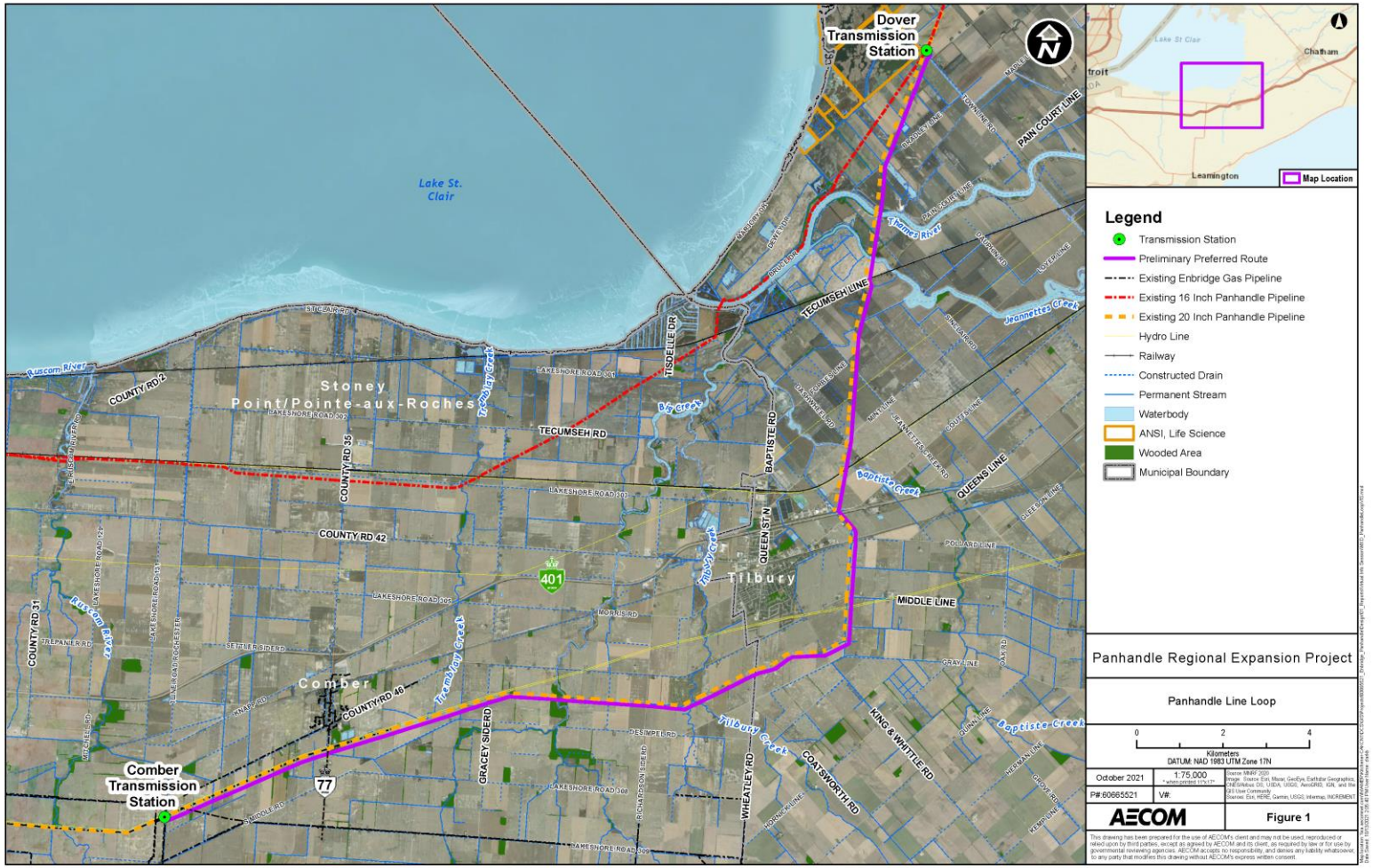
We are here

Step 5: Confirmation of Routes and Completion of Environmental Report

- The pipeline routes will be confirmed and analyzed in the Environmental Report. The location of the preferred pipeline routes may be refined as the Project moves forward based on pre-construction field investigations, landowner requests, and / or engineering and construction considerations.

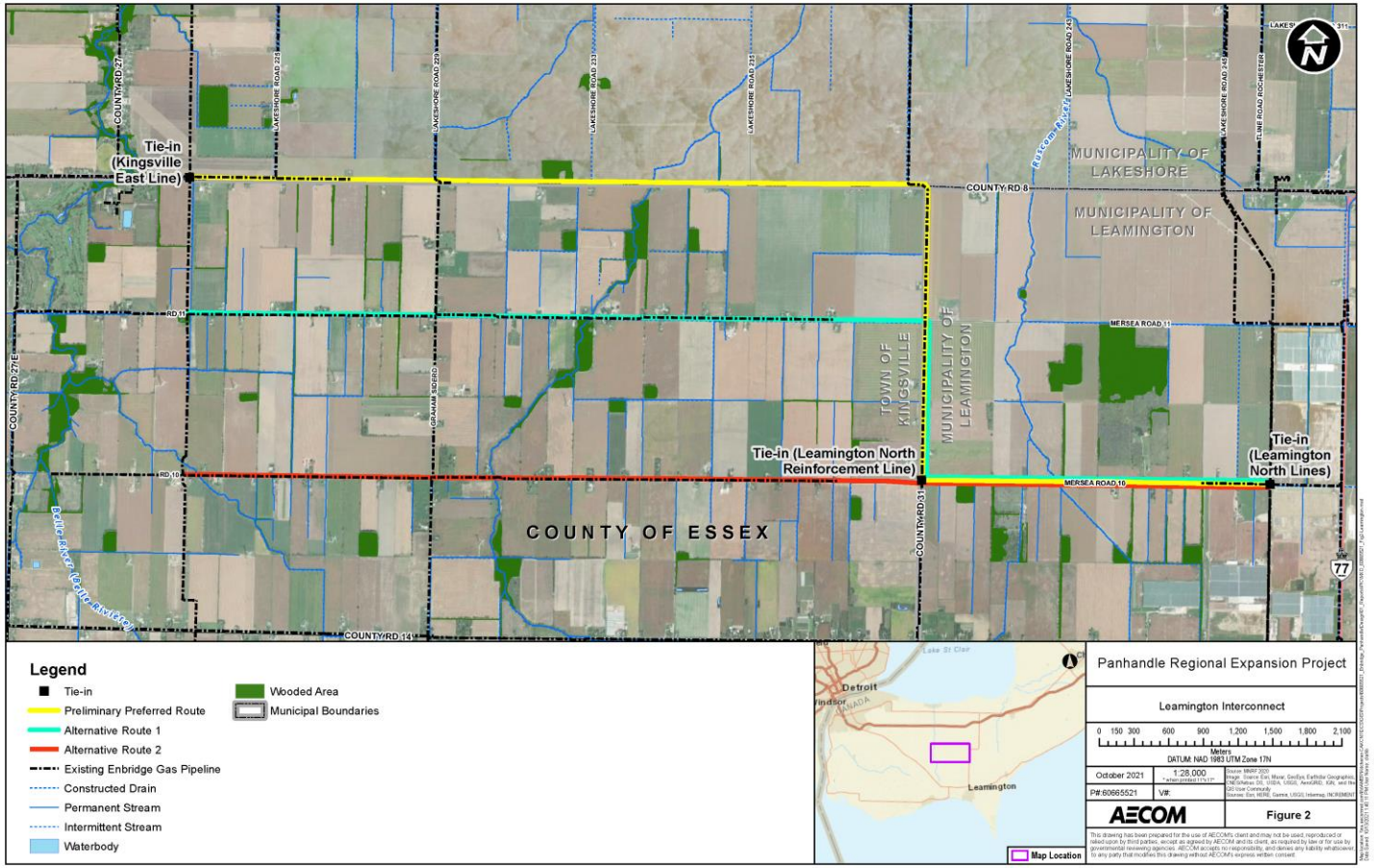
Panhandle Loop

- New natural gas pipeline up to 42 inches in diameter and 23 km in length located adjacent to an existing pipeline.
- Route will loop – or parallel – the existing 20-inch Panhandle Pipeline located between Enbridge Gas' Comber Transmission Station and Dover Transmission Station.
- Key considerations for selecting the preliminary preferred route:
  - The route parallels an existing pipeline right-of-way (RoW).
  - It leverages an existing RoW reducing disturbance to new properties and farms.
  - It is a shorter technically feasible route reducing schedule and cost.
  - Installation of the existing pipeline occurred with no long-term impacts to the environment.
  - The route avoids introduction of new environmental and social impacts to habitats and properties in the area.



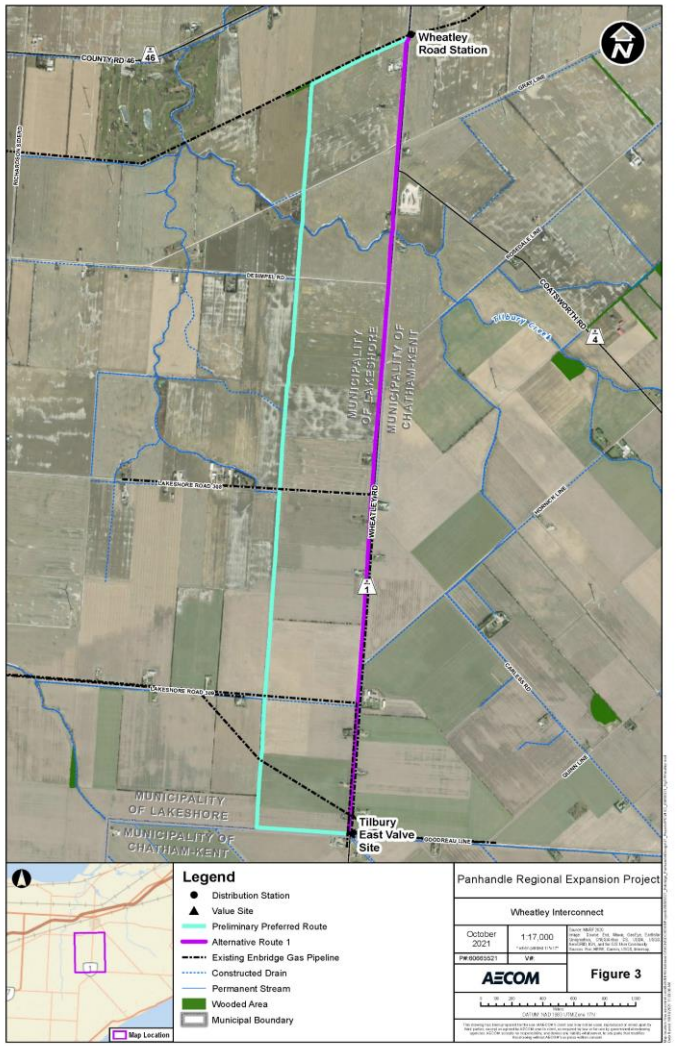
Leamington Interconnect

- New natural gas pipeline up to 16 inches in diameter and 12 km in length connecting the existing Leamington North Lines to both the Kingsville East Line and the Leamington North Reinforcement Line.
- Located adjacent to or within an existing road allowance on public or private property.
- Key considerations for selecting the preliminary preferred route:
  - The route parallels existing road allowances and utilities.
  - The route offers the most room for construction.
  - It has the least direct impacts to homes, utilities, and farm operations in the area.
  - The slope / topography is flat and there are no deep ditches impacting construction.
  - Route has minimal impacts to woodlots and environmental habitat within the area.



Wheatley Interconnect

- A new 16-inch natural gas pipeline located adjacent to or within an existing road allowance on public or private property connecting the Tilbury East Valve Site to the Wheatley Road Station.
- Key considerations for selecting the preliminary preferred route:
  - The route parallels existing property boundaries and drainage features, which limits the number of properties impacted during construction.
  - It is located at the back of agricultural fields to avoid impacts to woodlots and hedgerows.
  - The route limits impacts to residential and farm entrances.
  - It avoids the need for lane closures and traffic disruption on Wheatley Road.



Agricultural Soils and Maintaining Agricultural Drainage Systems

- The Project will be constructed, in part, on agricultural land within the Project study area.

Potential Effects

- Damaged and severed tile drains.
- Subsoil mixing, compaction, and rutting.
- Loss of organic matter / degraded soil structure.
- Decreased soil quality / agricultural capability.
- Erosion.
- Temporary drainage issues.
- Spread of soil pests / diseases.

Example Mitigation Measures

- Enbridge Gas will develop and implement a sampling program on agricultural easements along the pipeline route for potential pests and / or diseases that are known to the area, where appropriate.
- The entire outside boundaries of the work space necessary for construction of the Project will be staked at regular intervals.
- Landowners will be contacted prior to construction to confirm the location and type of existing drains. Any future drainage plans will also be discussed.
- Field tile will be temporarily re-routed during pre-construction activities where required to ensure proper drainage during construction.
- Construction activities will be temporarily halted on agricultural lands where excessively wet soil conditions are encountered.
- Damaged and severed drains will be repaired following construction. After repair and prior to backfilling, landowners will be invited to inspect and approve the repair. Any on-going field tile issues resulting from pipeline construction will be addressed by Enbridge Gas as required.
- A post-construction cover crop program will be available to landowners.

Socio-Economic Considerations

- The Project will be constructed parallel to existing road allowances on private property, agricultural land, land regulated by Hydro One, Lower Thames Valley Conservation Authority and Essex Region Conservation Authority.

Potential Effects

- Temporary increases in noise, dust and air emissions.
- Increased construction traffic volumes.
- Temporary impairment of use and enjoyment of property.
- Vegetation clearing along the pipeline easement.

Example Mitigation Measures

- Access to residences, businesses and farm fields will be maintained during construction.
- Construction will be restricted to daylight hours and adhere to applicable noise by-laws.
- A Traffic Control Plan will be developed if potential disruption to traffic could occur.
- Fencing will be placed at appropriate locations to limit access to the work area.
- A water well monitoring program will be developed.
- Measures will be implemented to control dust during construction.
- Areas cleared for construction will be re-vegetated.
- A designated Enbridge Gas representative will be available prior to and throughout construction.

Aquatic Resource Considerations

- Enbridge Gas understands the importance of protecting wildlife during construction and therefore will implement recognized mitigation measures to minimize possible environmental effects.

Potential Effects

- Disruption and alternation to aquatic species and habitat and / or nuisance effects.
- Increased erosion, sedimentation, and turbidity resulting from removal of vegetation.

Example Mitigation Measures

- Conduct surveys for waterbodies to assess potential impacts to aquatic species / habitat.
- Obtain all agency permits and approvals, including development of environmental mitigation measures for site specific habitat / species.
- Limit in-channel construction, where possible, and conform to fish timing window guidelines.
- If in-channel construction is required, protect aquatic species and manage sedimentation and turbidity.
- Restore and seed areas to establish habitat and reduce erosion.
- Replant vegetation along waterways as soon as possible following construction.

Terrestrial Resource Considerations

- During the course of construction, natural heritage features such as wildlife habitat and vegetated / wooded areas will need to be crossed.

Potential Effects

- Damage or removal of vegetation and wildlife habitat adjacent to the construction area.
- Disturbance and / or mortality to local wildlife.

Example Mitigation Measures

- Conduct surveys (including Species at Risk surveys) in advance of construction to determine opportunities for wildlife habitat to exist. If present, develop species / habitat specific environmental mitigation measures.
- Secure any necessary permits and follow any conditions of approval.
- Clearly mark the construction area to avoid accidental damage.
- Restore and seed areas to establish habitat and reduce erosion.

Cultural Heritage and Archaeology Considerations

- During the course of construction, cultural heritage and archaeology features such as archaeological finds, buildings, fences and landscapes may be encountered. Detailed field surveys will be conducted by independent, third-party archaeologists and cultural heritage professionals.

Potential Effects

- Damage or destruction of archaeological, paleontological or historical resources.

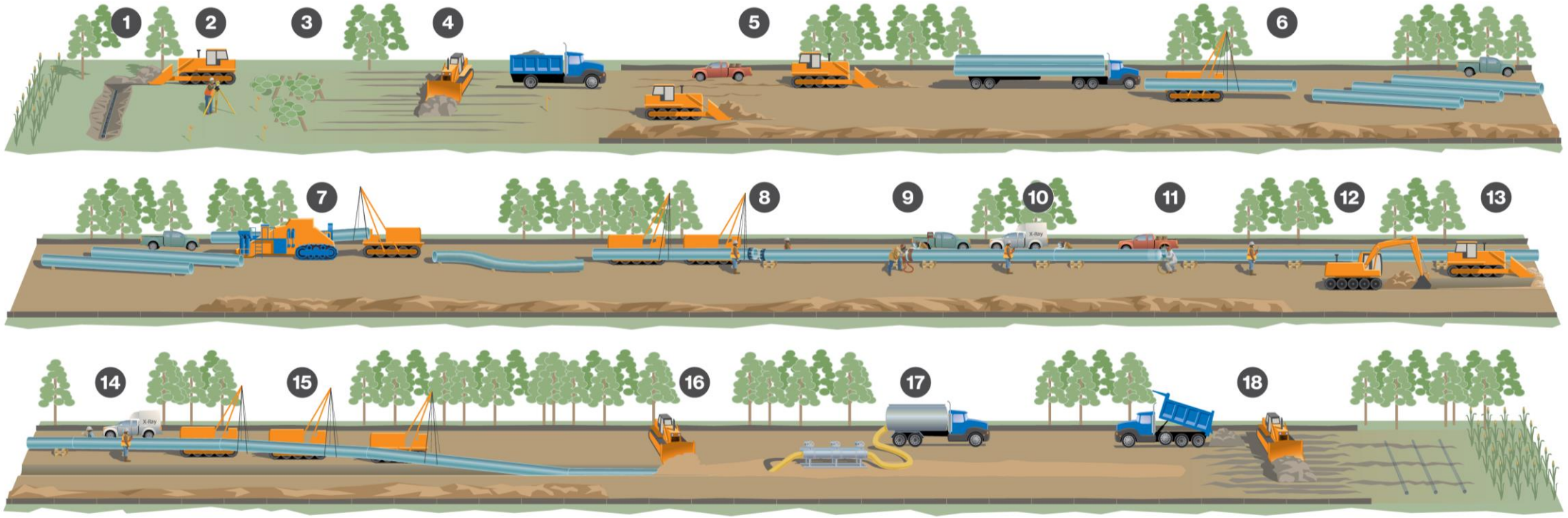
Example Mitigation Measures

- Complete archaeological assessments of the construction right-of-way, with review and comment from the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI).
- Complete cultural heritage assessments (for built heritage features and cultural heritage landscapes) of the construction right-of-way, with review and comment from MHSTCI.
- Report any previously unknown archaeological, paleontological or historical resources uncovered, or suspected of being uncovered, during excavation.

Access and Land Requirements

- Once a preferred route is selected, an Enbridge Gas Land Agent will begin discussions with landowners for the appropriate land rights necessary for the construction of the pipeline.
- Enbridge Gas is committed to working with all directly affected landowners in anticipation of acquiring early access agreements, where necessary, in order to gather essential information, including but not limited to, land survey data, environmental, archaeological and property site features, along with negotiating the necessary land rights.
- These land rights will consist of permanent easements and / or temporary land rights. The temporary land rights are only required during Project construction activities.
- Enbridge Gas will have a Land Agent available to each landowner during all pipeline construction activities.
- The Land Agent will keep all landowners informed of the progress of the Project and assist with any concerns that may arise as a result of the construction activities.

General Construction Overview



1. Pre-construction tiling
2. Surveying and staking
3. Clearing
4. Right-of-way topsoil stripping
5. Front-end grading
6. Stringing pipe
7. Field bending pipe
8. Lining-up pipe
9. Welding process
10. X-ray or ultrasonic inspection, weld repair
11. Field coating
12. Digging the trench
13. Padding trench bottom
14. Final inspection and coating repair
15. Lowering pipe
16. Backfilling
17. Hydrostatic testing
18. Site restoration and post-construction tiling

General Construction Overview

Site preparation (1-5)
- Survey and staking crews will delineate project boundaries and install safety fencing, where required.
- The construction team will clear brush and other vegetation to permit construction.
- A grading crew prepares the construction area for access by construction equipment.

Installing the new pipeline (6-16)
- Once area has been prepped, a hydraulic hoe will excavate the trench, which will then be prepared for the installation of the new pipeline.
- The stringing crew lays pipe on wooden skids or boxes adjacent to trench area.
- The pipe is prepped, welded into continuous lengths and inspected before the pipeline is lowered into the trench. Crews also install pipes under obstacles such as roads or watercourses by directional drilling.

Finishing construction (17-18):
- The pipeline is tested hydrostatically with water from a suitable local source and is disposed of appropriately. Upon completion, the pipeline is dried, purged of air and prepared for delivery of the product.
- The construction crew backfills the originally excavated subsoil over the pipe in the trench. Any surplus backfill material will be removed from the construction area.
- A clean-up crew is responsible for the restoration of the land. In natural areas, restoration includes re-seeding and removing erosion and sediment controls. In developed areas the clean-up crew undertakes landscaping plans developed for site restoration.

Next Steps

Enbridge Gas will evaluate the feedback received from the virtual information session, make updates as required and finalize the pipeline route evaluation. The final evaluation will be included in the Environmental Report (ER), which will be completed in early 2022. You will have the opportunity to review and provide feedback on the ER by signing up to receive future Project information.

Project Schedule

2021

- Start the environmental planning process.
- Evaluate potential pipeline routes.
- Virtual information session.

We are here

2022

- Complete ER.
- Complete Ontario Energy Board application and obtain approval.
- Finish permitting, pipeline design and construction planning.

2023

- Construction.
- Pipeline in service.
- Site cleanup and restoration and post-construction monitoring.

Thank you!

Thank you for participating in the virtual information session. If you have feedback or comments, please complete the comment form by December 3, 2021.

Mark Van der Word
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For more information about the proposed Project, please visit our Project website at:
www.virtualengagement.ca/panhandle

ENBRIDGE GAS INC.

Undertaking Response to ED

To advise (a) the penalty to be paid if the 58 TJ's per day is cancelled before acceptance of any incremental gas; (b) to advise the NPV of the incremental revenue included in the stage 1 DCF analysis associated with the flow from this incremental power generation demand. If the question cannot be answered, to advise and explain why.

Response(s):

a) No such penalty is contemplated within the customer's contract as Enbridge Gas has no reason to expect that the customer will not require the incremental firm services sought.

b) The incremental revenue associated with the 58 TJ/day of power generation demand has a NPV impact of approximately $38 million on the stage 1 analysis.

ENBRIDGE GAS INC.

Undertaking Response to ED

To provide data for the average peak reduction for industrial customers by 2030 as a percentage of the base case, and if possible, to provide the percentage on a cubic metres per hour, cubic metres per day basis.

Response:

The peak hour reduction (m^3/hr) for industrial customers by 2030 from Scenario B is approximately 4.2% of the base case peak hour consumption. Posterity's analysis was focused on peak hour reductions, and the values can be converted to m^3/day using a conversion factor. Because the conversion factor is static, the average peak day reduction percentage (relative to the base case) is the same as the average peak hour reduction percentage. Please see Table 1 below.

Table 1

	2030
Sum of Hourly Peak Consumption (m^3/hr)	39,730
Sum of Scenario B Hourly Peak Reduction (m^3/hr)	1,686
Peak Reduction as % of Peak Consumption	**4.2%**

ENBRIDGE GAS INC.

Undertaking Response to ED

To provide data for the average ratio for residential customers between the achievable annual savings and the achievable peak savings, in relation to cubic metres per hour and cubic metres per day.

Response:

Annual savings and peak hour savings for the residential sector have been provided in Table 1 below. However, it would not be meaningful to calculate a ratio between the two, as the units are not the same. For more clarity on converting annual savings to peak hour savings based on end-use, please see the response to Exhibit I.ED.7 Attachment 4.

Table 1

	2030
Sum of Scenario B Potential Savings (m^3)	6,725,021
Sum of Scenario B Hourly Peak Reduction (m^3/hr)	5,335

ENBRIDGE GAS INC.

Undertaking Response to ED

To make best efforts to provide the base case general service space heating demand in 2023 broken down by residential and non-residential, if possible.

Response(s):

Please see Table 1 below for a breakdown of space heating demand between Residential and Non-Residential.

Table 1

Space Heating Demand	**Non-Residential**	**Residential**
Total Consumption (m^3)	52,589,984	28,223,033
Total Hourly Peak Consumption (m^3/hr)	44,578	19,350

ENBRIDGE GAS INC.

Undertaking Response to ED

To make best efforts to estimate the diversity in the reduction and overall demand due to diversity of these new customers, based on existing customers

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Response:

The total demand of current commitments set out in the response to Exhibit I.PP.5 c), Table 1, is 167.3 TJ/d. Enbridge Gas is unable to forecast the exact diversity of forecast incremental demand until it is realized due to customer location, equipment type, and actual operation. Diversification for these customer types is not applied to forecast demands due to the potential range in variation. Once the customers are connected to the system, only then are the demands included in the diversification based on actual customer consumption. However, to be responsive and on a best-efforts basis, the Company has applied historical diversification assumptions to the incremental commitments. Based on these assumptions, the 167.3 TJ/d would be reduced to 157 TJ/d which is a reduction of approximately 10 TJ/d. However, the Company cautions against drawing conclusions based on this estimate, due to the potential variability noted above.

ENBRIDGE GAS INC.

Undertaking Response to OEB STAFF

Staff Follow-up Question #1

Reference:
Enbridge Gas Response to Interrogatory FRPO.13

Preamble:
Enbridge Gas stated in its response to interrogatory FRPO.13: "*If the* [Brighton Beach GS (*BBGS*)] *pressure constraint was to be reduced, the new pressure constraint would shift to West Windsor Power Generation ("WWPG"). WWPG is located immediately adjacent to BBGS with the same delivery pressure constraint of 1724 kPag. Many other distribution stations in the City of Windsor near BBGS have similar pressure constraints.*"

The responses goes on to say, "*The distribution system downstream of the Leamington North Gate operates at 1,900 kPag*".

Questions:

a) Are the "many other distribution stations in the City of Windsor near BBGS" that have similar pressure constraints as BBGS driven by customers for which Enbridge Gas has a minimum pressure obligation? Please explain in detail.
b) Are firm transportation contracts for customers served via the Panhandle System containing minimum pressure obligation restricted to power generation customers?
c) What is the driver for the distribution system downstream of the Leamington North Gate Station that operates at 1,900 kPag? Is the driver for the operating pressure the size of the distribution pipe downstream of the Leamington North Gate Station or customers minimum pressure requirements? Please explain in detail.
d) Do all of Enbridge Gas's firm contract customers served by the Panhandle System have a minimum pressure obligation in their transportation contracts.
e) Enbridge Gas provides contract transportation service to BBGS, East Windsor Cogeneration Centre, West Windsor Power Plant, Windsor-Essex Power Plant plus other large and small-scale gas-fired generators in the Windsor-Essex Region served via the Panhandle System. Enbridge Gas in its response to FRPO.13 indicates that it has a minimum pressure obligation of 1,724 kPag (250 psig) to BBGS and the West Windsor Power Plant. OEB staff understands that gas-fired generation stations using combustion turbines require a turbine inlet natural gas pressure greater that 1,724 kPag.
    i. What is the range of actual delivery pressure to each of the aforementioned gas-fired generation customers?
    ii. Which of the gas-fired generators have their own on-site compression capability?

Response(s):

a) Yes. Figure 1 below shows the transmission, distribution and customer stations in the vicinity of Brighton Beach Generation Station (BBGS) which is labelled #1.

Each transmission, distribution or customer station has a minimum pressure that must be maintained by the Panhandle Transmission system into the station for the station to operate as designed and to be able to provide the required pressure to the downstream customer or distribution system served. This is termed the "minimum inlet pressure".

The minimum inlet pressure must be higher than the station outlet pressure to account for pressure losses through the station equipment.

The stations in the Windsor area near BBGS are shown in Figure 1 as #2 to #11. The minimum inlet pressures of these stations range from 1,670 kPag to 2,206 kPag. The customers with high delivery pressures are shown in yellow squares. The delivery pressure to these customers is based on the customers' specific equipment requirements.

The BBGS, WWPG and ADM Agri Cogen stations are "unregulated" which means there is only measurement at the station and not pressure regulation. Unregulated pressure provides the customer with full line pressure and reduces the minimum inlet pressure to a value as low as possible to maintain the delivery pressure to the customer. There is no capacity gain possible by rebuilding these stations with a lower minimum pressure as the measurement cannot be removed.

The other distribution or transmission stations in the area all have a minimum inlet pressure in a similar range and also feed downstream distribution systems ranging in pressures from 1,380 to 2,070 kPa. The pressure in the NPS 16 Panhandle Line cannot drop below these minimum inlet pressures and maintain station operation and required downstream system pressures to customers.

The constraint itself acts as a measure in the hydraulic modelling to ensure that all other transmission, distribution or customer station (or unregulated customer) minimum inlets are met. This is part of the hydraulic design criteria set out in Exhibit B, Tab 2, Schedule 1, Page 5, where it is stated that Enbridge Gas must operate within flow and minimum inlet pressure constraints at meter and regulating stations and must operate above customers minimum contractual delivery pressures.

Figure 1: Transmission, distribution and customer stations in the vicinity of Brighton Beach Generation Station (BBGS)

1. Brighton Beach Power
Min Inlet: 1827 kPa
Delivery pressure: 1724 kPa

2. West Windsor Power
Min Inlet: 1827 kPa
Delivery pressure: 1724 kPa

3. ADM Agri Cogen
Min Inlet: 1724 kPa
Delivery pressure: 1620 kPa

4. Sprucewood Distribution
Min Inlet: 1900 kPa
Feeds downstream 420 kPa system

5. Turkey Creek Transmission
Min Inlet: 1724 kPa
Feeds downstream 2070 & 420 kPa system

6. Titcombe Station
Min Inlet: 2206 kPa
Feeds downstream 1900 kPa system

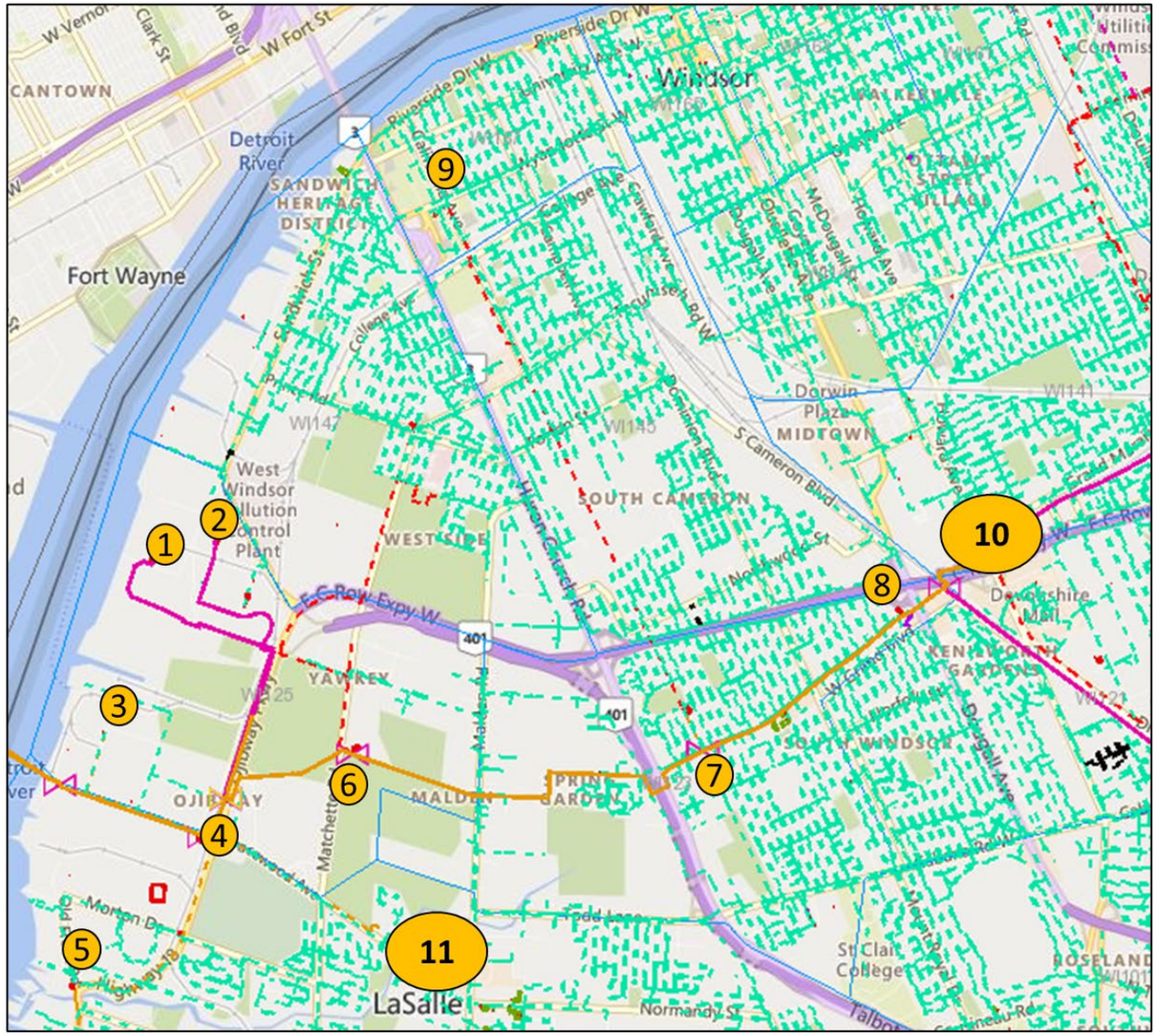
7. California Station
Min Inlet: 2070 kPa
Feeds downstream 1900 & 420 kPa system

8. Bruce Ave Distribution
Min Inlet: 1725 kPa
Feeds downstream 420 kPa system

9. University of Windsor Boiler Plant
Min Inlet: 1670 kPa
Delivery pressure: 1575 kPa

10. Grand Marais Transmission
Min Inlet: 2070 kPa
Feeds downstream 1380 & 420 kPa system

11. LaSalle Gate
Min Inlet: 1900 kPa
Feeds downstream 420 kPa system



b) No, minimum delivery pressure obligations are not restricted to power generation customers served via the Panhandle System. All distribution contracts, firm or interruptible, have a minimum delivery pressure obligation stated within the distribution contract parameters. The minimum delivery pressure specified in distribution contracts can vary depending on customer requirements and are not limited to power generation customers.

c) The driver is both to maintain pressure in the distribution system and to maintain customer minimum pressure requirements. Figure 2 below shows the transmission, distribution and customer stations in the vicinity of the Leamington North Gate Station (labelled as #2). The customers with high delivery pressures are shown in yellow squares. The Leamington North Gate Station regulates pressure from the 6,040 kPa Leamington North Lines to both a 1,900 kPag and 420 kPag distribution network. The downstream 1,900 kPag network serves the Highbury Canco food processing plant at a delivery pressure of 1,550 kPag (labelled as #1 in Figure 2).

   The 1,900 kPag distribution system that is downstream of the Leamington North Gate station (#2) is also interconnected with the other Leamington-Kingsville laterals through the County Road 18 Station (#3), Mersea Gate station (not shown in Figure 2), Kingsville East Gate station (not shown in Figure 2) and the Essex Transmission station (not shown in Figure 2).

   This 1,900 kPag network makes up the backbone of the greenhouse market growth within this area. To maintain capacity in this 1,900 kPag distribution system and continue to serve the high-pressure customer, the network needs to operate as close to 1,900 kPag as possible. Thus, the regulating stations feeding this system must have a minimum inlet pressure above 1,900 kPag.

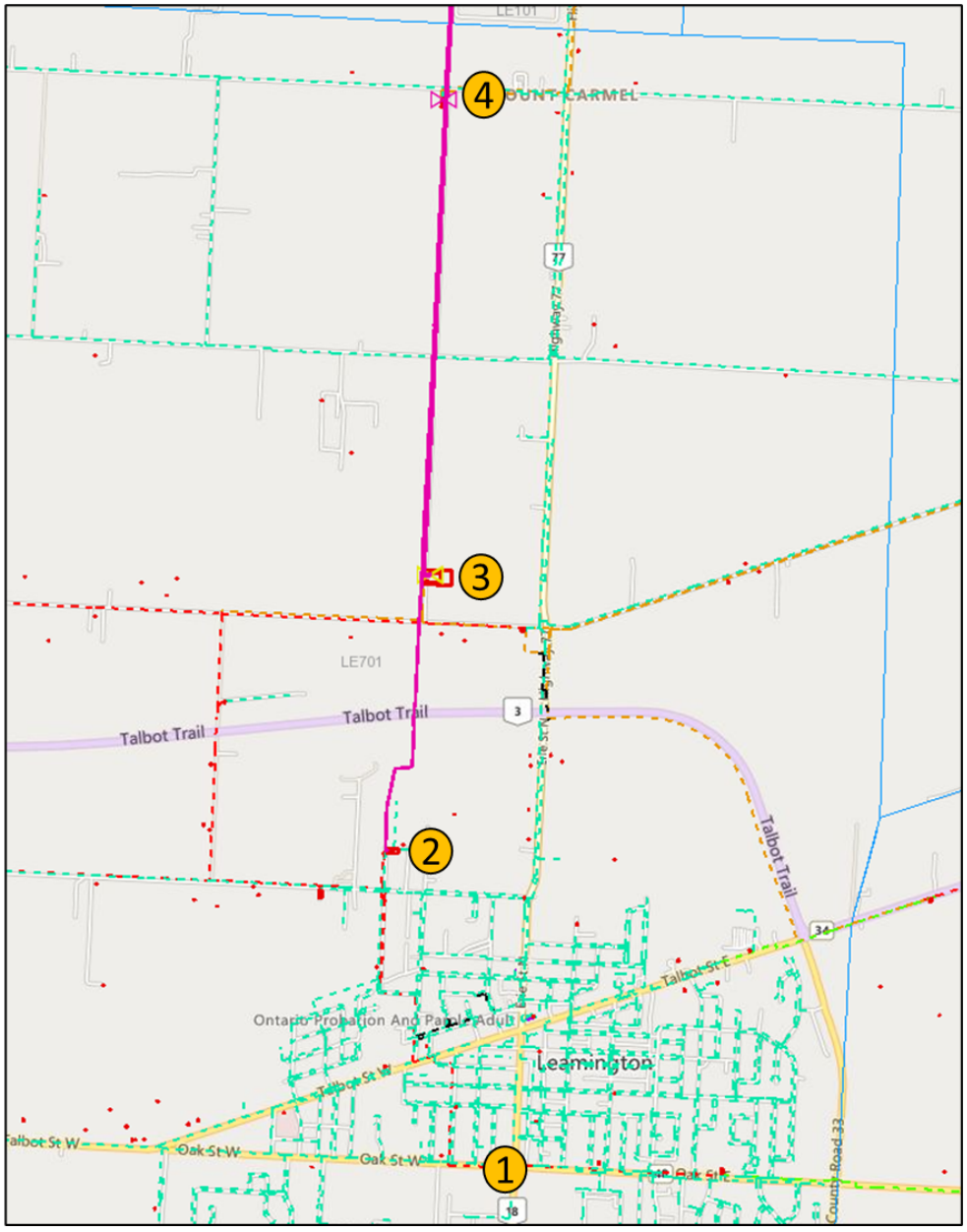
Figure 2: Transmission, distribution and customer stations in the vicinity of the Leamington North Gate Station

1. Highbury Canco
Min Inlet: 1600 kPa
Delivery pressure: 1550 kPa

2. Leamington North Gate Station
Min Inlet: 2275 kPa
Feeds downstream 1900 & 420 kPa system

3. County Road 18 Station
Min Inlet: 2275 kPa
Feeds downstream 1900 system

4. Conc 6 Station
Min Inlet: 2550 kPa
Feeds downstream 1900 system



d) Yes. All contract rate customers have a minimum delivery pressure specified within their distribution contract parameters. The minimum delivery pressure obligation for each customer varies, depending on the type of customer and the gas-fired equipment they have on site.

e)

i. The available actual range of station inlet pressures for the four major power generators are provided in Table 1 below. The data from 2015 to present was reviewed to determine the actual ranges. The minimum and maximum pressures do not occur on the same day.

Table 1

Power Generator	**Actual Measured Minimum Pressure (kPag)**	**Actual Measured Maximum Pressure (kPag)**
Brighton Beach Generating Station	1911.6	2920.4
West Windsor Power Station	1838.8	2162.6
TransAlta Generating Station	2018.5	3676.5
East Windsor Cogen	2003.4	3100.8

ii. None of the gas-fired generators have shared with Enbridge Gas that they have the ability to run on-site compression.

ENBRIDGE GAS INC.

Undertaking Response to OEB STAFF

Staff Follow-up Question #2

References:
Enbridge Gas Response to Interrogatory OEB Staff.12
EB-2022-0088, Exhibit D, Tab 1, Schedule 1, p. 1

Preamble:
A comparison of the project costs for the Panhandle Loop and the Panhandle Reinforcement Project is set out in the below table.

Table 1

Item No.	Description	(a) Current Project Panhandle Loop	(b) Comparison Forecast (2017 PRP) (EB-2016-0186)	(c) Comparison Actual 2017 PRP (EB-2016-0186)	(d) =(a) - (c) Variance to Actual
	Pipeline Diameter Length (km) Pipeline Material	*NPS 36 19km Steel*	*NPS 36 40km Steel*	*NPS 36 40km Steel*	
1	Materials	56,600,000	23,800,000	24,480,000	32,120,000
2	Labour	124,100,000	203,754,000	202,374,000	(78,274,000)
3	Contingency	19,200,000	34,133,000		19,200,000
4	Interest During Construction	3,500,000	2,781,000	1,837,000	1,663,000
5	Total Direct Capital Cost	203,400,000	264,468,000	228,691,000	(25,291,000)
6	Indirect Overheads	43,200,000	-		43,200,000
7	Total Project Cost	246,600,000	264,468,000	228,691,000	17,909,000
8	Total Cost per km	12,979,000	6,612,000	5,717,000	7,262,000
9	Material Cost per km	2,979,000	595,000	612,000	2,367,000
10	Labour, External permitting and land, and Outside Services per km	6,532,000	5,094,000	5,059,000	1,473,000

The proposed project costs for the Dawn to Corunna project are set out in the table below.

Table 2

Item #	Description	Pipeline Costs	Ancillary Costs	Total Costs
1.0	Materials	$11,800,354	$36,643,592	$48,443,946
2.0	Construction & Labour	$51,310,846	$28,993,020	$80,303,866
3.0	External Permitting & Lands	$15,322,222	$0	$15,322,222
4.0	Outside Services	$19,230,385	$15,702,325	$34,932,710
5.0	Direct Overheads	$1,295,000	$0	$1,295,000
6.0	Contingency	$13,180,351	$10,816,348	$23,996,699
7.0	IDC	$2,093,000	$0	2,093,000
8.0	**Project Cost**	**$114,232,158**	**$92,155,285**	**$206,387,443**
9.0	Indirect Overheads & Loadings	$26,277,051	$18,085,209	44,362,260
10.0	**Total Project Costs**	**$140,509,209**	**$110,240,494**	**$250,749,703**

NOTE:
The total costs set out in Table 1 include abandonment of the existing seven CCS compressor units K701-K703 and K705-K708 amounting to $14.5 million.

Questions:

a) Please separate the Panhandle Loop costs into pipeline costs and ancillary costs, as applicable, using the same itemized cost descriptions as in Table 1 to allow for a comparison of only the pipeline costs between the Panhandle Loop and the Dawn to Corunna project.

b) In response to this question:
   i. Please provide a table, using the same itemized cost description as in Table 1, separately comparing the pipeline costs between the Panhandle Loop and the Dawn to Corunna project. OEB staff is seeking to compare the material and labour costs per km of the Panhandle Loop and a recent proposed project.
   ii. Please include a discussion of any material differences between the two projects that would lead to significant cost differences with respect to the pipeline only costs, as applicable.

Response(s):

a) Please see Table 1 below.

Table 1

Panhandle NPS 36 Loop				
Item No.	Cost Description	Pipeline costs	Ancillary	Total
1	Materials	28,300,000	28,300,000	56,600,000
2	Labour	96,200,000	27,900,000	124,100,000
3	Contingency	13,100,000	6,100,000	19,200,000
4	Interest During Construction	2,300,000	1,200,000	3,500,000
5	Total Direct Capital Cost	139,900,000	63,500,000	203,400,000
6	Indirect Overheads	29,700,000	13,500,000	43,200,000
7	Total Project Cost	169,600,000	77,000,000	246,500,000
8	Total Cost per km	8,926,316	NA	NA
9	Material Cost per km	1,489,474	NA	NA
10	Labour, External permitting and land, and Outside Services per km	5,063,158	NA	NA

b)

i. Please see Table 2 below.

Table 2

		Panhandle NPS 36 Loop	Dawn-Corunna NPS 36
Item No.	Cost Description	Pipeline costs	Pipeline Costs
1	Materials	28,300,000	11,800,354
2	Labour	96,200,000	87,158,453
3	Contingency	13,100,000	13,180,351
4	Interest During Construction	2,300,000	2,093,000
5	Total Direct Capital Cost	139,900,000	114,232,158
6	Indirect Overheads	29,600,000	26,277,051
7	Total Project Cost	169,500,000	140,509,209
8	Total Cost per km	8,921,053	7,025,460
9	Material Cost per km	1,489,474	590,018
10	Labour, External permitting and land, and Outside Services per km	5,063,158	4,357,923

ii. Variances in estimated costs per kilometer between the NPS 36 Panhandle Loop and the NPS 36 Dawn to Corunna pipeline are primarily related to labour and materials and can be attributed to differences in the timing of estimate development and their respective class level at the time of filing:

- The cost estimate for the NPS 36 Dawn to Corunna pipeline was completed in Q3 2021 at a Class 4 level. Pipeline material and construction costs were based on historical data (primarily the 2017 Panhandle Reinforcement Project) consistent with the estimating methodology outlined in AACE RP 18R-97.

- The cost estimate for the NPS 36 Panhandle Loop was completed in Q2 2022 at a Class 3 level and utilized current external market data to estimate material and construction costs.

Please also see the response at Exhibit I.STAFF.13 for information related to Cost Estimate classifications and the criteria applied to the proposed Project.

ENBRIDGE GAS INC.

Undertaking Response to OEB STAFF

Staff Follow-up Question #3

References:
Enbridge Gas Response to Interrogatory OEB Staff.15 (c) Enbridge Gas Response to Interrogatory ED.14 (a) Exhibit E, Tab 1, Schedule 1, p. 7

Preamble:
Enbridge Gas noted that the natural gas price of $0.14/m3 used in the Stage 2 DCF analysis is the 2021 average effective price determined using the posted effective price on the OEB's website.

Enbridge Gas noted that the Stage 2 NPV energy cost savings are estimated to be in the range of approximately $214 million over a period of 20 years to $335 million over 40 years.

Question:

Please advise whether the Stage 2 NPV energy cost savings would be in the range of approximately $182 million over a period of 20 years to $284 million over 40 years if the 2022 average effective price ($0.26/m3) was used in the analysis instead. If this is not correct, please provide the correct NPV energy cost savings using the 2022 average effective price for natural gas.

Response(s):

Enbridge Gas confirms the Stage 2 NPV energy cost savings would be in the range of approximately $182 million over 20 years to $284 million over 40 years if the 2022 average effective price of natural gas of $0.26/$m^3$ was used. However, this scenario does not use updated alternative fuel prices to reflect 2022. Please see the response at Exhibit I.ED.15 a), for an analysis comparing all fuel prices using prices for the 12 months ending August 2022.

ENBRIDGE GAS INC.

Undertaking Response to Middle Road Farms Limited (Courey Corporation)

To advise a calculated figure for pressure drop in the existing pipeline between Wheatley Road and Richardson Sideroad.

Response(s):

Please refer to Table 1 and Figure 1 below.

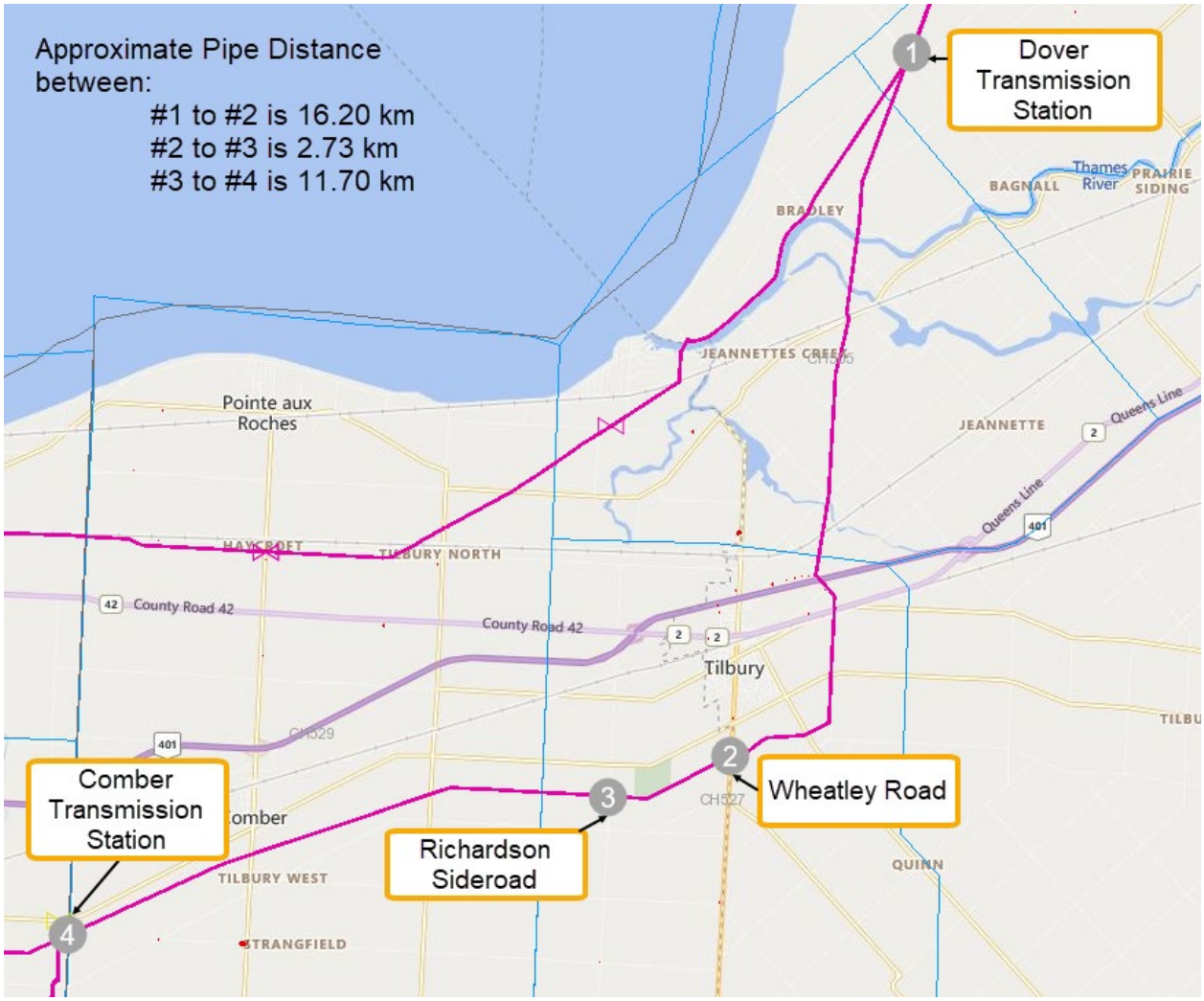
Since the year of interest was not specified in the request, results from two winters were provided: Winter 2021/2022, which is the most recent Winter, and Winter 2023/2024, which is the first year where growth from the expression of interest is realized.

Please note that the Panhandle System's minimum pressure constraints at Brighton Beach Power Generator and at Leamington North Gate Station cannot be maintained under the Winter 2023/2024 scenario in Table 1. This information is shown in more detail at Exhibit B, Tab 2, Schedule 1, Attachment 1.

Table 1: Pressure Drop between Dover Transmission and Comber Transmission Stations without the Proposed Project

Winter Year	Pressure Drop from Location to Location (kPag)		
	Dover Transmission to Wheatley Road [#1 to #2]	*Wheatley Road to Richardson Sideroad [#2 to #3]*	*Richardson Sideroad to Comber Transmission [#3 to #4]*
Winter 2021/2022	728	134	627
Winter 2023/2024	1058	205	1023

Figure 1: Map of Station Locations Provided in Table 1



ENBRIDGE GAS INC.

Undertaking Response to Middle Road Farms Limited (Courey Corporation)

To produce data showing pressures at Wheatley Road now, and the pressure drop that would be experienced at Richardson Sideroad without this extension past Wheatley Road

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Response(s):

Table 1 below shows the pressure at Wheatley Road and Richardson Sideroad along the existing NPS 20 Panhandle Line. Table 2 below shows the pressure drop between Wheatley Road and Richardson Sideroad. Please refer to Figure 1 in the response at Exhibit JT2.9 for a visual representation of the locations.

Tables 1 and 2 include the pressure and pressure drop from:
a) The current Winter 2021/2022 without the proposed Project.
b) The future Winter 2027/2028, with an NPS 36 Panhandle Loop terminated at Wheatley Road instead of Richardson Sideroad.

Shortening the NPS 36 Panhandle loop of the existing NPS 20 Panhandle Line to Wheatley Road does not provide enough capacity to serve the 5-year demand forecast in Winter 2027/2028. Ending the NPS 36 Panhandle loop at Wheatley Road decreases the proposed Project's capacity by 31 TJ/d.

Table 1: Minimum pressure at Wheatley Road and Richardson Sideroad along NPS 20

		Pressure (kPag)	
Winter Year		*Wheatley Road [#2]*	*Richardson Sideroad [#3]*
Current [no project]	Winter 21/22	5135	5001
Year 5 of Project [shorten loop to Wheatley Road]	Winter 27/28	5671	5344

Table 2: Pressure drop between Wheatley Road and Richardson Sideroad

		Pressure Drop (kPag)
Winter Year		*Wheatley Road to Richardson Sideroad [#2 to #3]*
Current [no project]	Winter 21/22	134
Year 5 of Project [shorten loop to Wheatley Road]	Winter 27/28	327

ENBRIDGE GAS INC.

Undertaking Response to Middle Road Farms Limited (Courey Corporation)

To provide a table showing pressures and flows for a typical summer day for the 2025-26 operating year, for a typical winter day for the same period, and the peak design day.

Response(s):

Table 1 provides the flow and minimum pressure at the Dawn Compressor Station, Dover Transmission Station, Wheatley Road, Richardson Sideroad and Comber Transmission Station for a typical day in Summer 2026, typical winter day in 2025/2026, and Design Day for Winter 2025/2026. Please see Figure 1 in the response to Exhibit JT2.9 for a visual representation of the area.

It is important to note there are no stations, direct connected customers, or take-offs to any downstream distribution system between Dover Transmission Station and Comber Transmission Station. The NPS 20 Panhandle Line between Dover Transmission and Comber Transmission stations delivers natural gas to customers at and west of Comber Transmission Station in the Windsor and Leamington Kingsville markets.

Table 1: Flow and Minimum Pressure for the Existing System and with the Proposed Project for Winter 2025/2026 and Summer 2026

	System without Proposed Project		System with Proposed Project	
	Flow ($10^3m^3/d$)	Pressure (kPag)	Flow ($10^3m^3/d$)	Pressure (kPag)
Typical Summer Day (Summer 2026)				
Dawn Compressor Station	9298	4827	9298	4827
Dover Transmission Station (to NPS 20)	5388	4758	5388	4757
Wheatley Road	5388	4408	5388	4742
Richardson Side Road	5388	4346	5388	4740
Comber Transmission Station	5388	4069	5388	4485
Typical Winter Day (Winter 2025/2026)				
Dawn Compressor Station	16754	6040*	16754	6040
Dover Transmission Station (to NPS 20)	10760	5897*	10760	5882
Wheatley Road	10760	4895*	10760	5841
Richardson Side Road	10760	4703*	10760	5834
Comber Transmission Station	10760	3761*	10760	5024
Design Day (Winter 2025/2026)				
Dawn Compressor Station	Pressures are too low; the model will not solve with only the existing infrastructure.		19981	6040
Dover Transmission Station (to NPS 20)			13225	5815
Wheatley Road			13225	5754
Richardson Side Road			13225	5744
Comber Transmission Station			13225	4441

NOTES:
*The pressures provided are to respond to the request, however the Panhandle System would not have sufficient capacity without the proposed Project to maintain pressures above the required minimum pressure at the system constraint locations.

ENBRIDGE GAS INC.

Undertaking Response to Middle Road Farms Limited (Courey Corporation)

To provide a table showing pressures and flows at the three locations of Dawn, Wheatley Road, and comber transmission for summer day, winter day, and peak design day.

Response(s):

Table 1 below summarizes the minimum system pressures and flows at Dawn Compressor Station, Dover Transmission Station, Wheatley Road, Richardson Sideroad and Comber Transmission Station for each typical summer day in 2026, a typical winter day in 2025/2026, and Design Day for winter 2025/2026.

“Existing Pipeline” refers to the current system without any reinforcement, and “New Pipeline” refers to the Leamington Interconnect and the NPS 36 Loop from Dover Transmission to Wheatley Road instead of Richardson Sideroad (2.72 km shorter than the proposed Project).

It is important to note there are no stations, direct connected customers, or take-offs to any downstream distribution system between Dover Transmission Station and Comber Transmission Station. The NPS 20 Panhandle Line between Dover Transmission and Comber Transmission stations delivers natural gas to customers at and west of Comber Transmission Station in the Windsor and Leamington Kingsville markets.

Based on the two scenarios below, ending the loop at Wheatley Road reduces pressure drop between Dover Transmission to Wheatley Road. However, when compared to the results detailed within the response at Exhibit JT2.11 (ending the loop at Richardson Sideroad), this scenario does not greatly improve the pressure drop from Wheatley Road to Richardson Sideroad. Comparing the pressure drops between Wheatley Road and Richardson Sideroad, extending the loop to Richardson improves the pressure drop from 270 kPag to 10 kPag, bringing additional pressure to Comber Transmission to serve downstream markets.

Furthermore, the reduced pressure losses (or improved pressure drop) by looping from Dover Transmission to Richardson Sideroad, compared to Dover Transmission to Wheatley Road, amounts to an incremental 31 TJ/d of system capacity and can serve the minimum 5-year shortfall of 192 TJ/d.

Table 1: Showing minimum pressures and flows of the existing pipeline system to the Proposed Project but ending the NPS 36 loop at Wheatley Road, with 2025/2026 forecast demands

Demands from 2025/2026	Existing Pipeline		New Pipeline *(Loop ending at Wheatley Road and Leamington Interconnect)*	
	Flow (km^3/d)	Pressure (kPag)	Flow (km^3/d)	Pressure (kPag)
Typical Summer Day (Summer 2026)				
Dawn Compressor Station	9298	4827	9298	4827
Dover Transmission to Leamington	5388	4758	5388	4758
Wheatley Road	5388	4408	5388	4744
Richardson Side Road	5388	4346	5388	4686
Comber Transmission Station	5388	4069	5388	4428
Typical Winter Day (Winter 2025/2026)				
Dawn Compressor Station	16754	6040*	16754	6040
Dover Transmission to Leamington	10760	5897*	10760	5883
Wheatley Road	10760	4895*	10760	5846
Richardson Side Road	10760	4703*	10760	5670
Comber Transmission Station	10760	3761*	10760	4831
Design Day (Winter 2025/2026)				
Dawn Compressor Station	Pressures are too low; the model will not solve with only the existing infrastructure.		19981	6040
Dover Transmission to Leamington			13225	5817
Wheatley Road			13225	5763
Richardson Side Road			13225	5493
Comber Transmission Station			13225	4119

NOTES:
*The Panhandle System would not have sufficient capacity without the proposed Project to maintain pressures above the required minimum pressure at the system constraint locations.

ENBRIDGE GAS INC.

Undertaking Response to Middle Road Farms Limited (Courey Corporation)

To identify the equipment that would be located at that location and why it required 100 by 100 metres

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Response(s):

This land will be primarily used for the safe operation and maintenance of Enbridge Gas pipelines and will connect the new NPS 36 pipeline to the existing NPS 20 pipeline. The following items will be installed at the site:

- A launcher/receiver to allow for in-line inspection of the NPS 36 pipeline;
- Valves, operators, piping and electrical controls to allow for remote operation and monitoring of the valve site while improving safe operation of the Panhandle System;
- A building to house electrical controls with a backup generator;
- Access roads to allow for safe access and egress at the site for operational support vehicles, equipment and/or personnel; and,
- Fencing around the perimeter of the area.

Additional items may be installed as necessary. The proposed dimensions provide the necessary space to house on-site equipment, and for their safe access.

ENBRIDGE GAS INC.

Undertaking Response to Middle Road Farms Limited (Courey Corporation)

To confirm plans regarding the wind break of trees on the edge of the property, next to Richardson Sideroad, both for the tie-in station and the mobilization yard, and whether a grave stand hard pad is required.

Response(s):

Tree removal from the windbreak along Richardson Sideroad will be necessary but will be limited to the two areas required to provide access to the proposed valve site and mobilization yard. Each access area will be approximately 12 metres in width and Enbridge Gas is committed to working with the landowner on tree replacement.

A gravel pad is not required for the mobilization yard.

ENBRIDGE GAS INC.

Undertaking Response to Middle Road Farms Limited (Courey Corporation)

To explain methodology to allow Enbridge to funtion on a 200-metre north-south dimension and either 150 or 100 east-west dimension, bisected by a four-foot-deep ditch.

Response(s):

Temporary land use is typically planned along proposed construction routes to safely prepare, load, and unload required mechanical equipment outside of the active construction areas.

The specific area proposed at the property is directly in line with the anticipated pipeline installation easement and allows for construction supplies and equipment to be staged or stored for access and use along the pipeline construction route.

The ditch referenced lies between the proposed station and the pipeline construction. Access for the station construction would be typically from the north side of the ditch from a newly installed road access if approved by municipal officials. Access for pipeline construction would be from south side of the ditch.

ENBRIDGE GAS INC.

Undertaking Response to Middle Road Farms Limited (Courey Corporation)

To advise Enbridge policy of changing its approach when a small parcel of land is unusually destroyed.

Response(s):

Enbridge Gas does not have a formal policy in place governing its approach to the acquisition of land. Acquisition of land is evaluated on a case-by-case basis specific to each project.

Enbridge Gas is not aware of any recent instances where project construction has caused a parcel of land to be “unusually destroyed”.

Enbridge Gas values its relationships with landowners and seeks to avoid and/or mitigate the impacts of construction on stakeholders, lands and the environment. Where property is damaged, or landowners incur losses as a result of project construction the Company is committed to working directly with landowners to address their concerns, make reparations and/or compensate them as may be appropriate.