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**Enbridge Gas Inc.**  
P.O. Box 2001  
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Chatham, Ontario, N7M 5M1  
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January 31, 2020

BY RESS, EMAIL AND COURIER

Ms. Christine Long  
Board Secretary  
Ontario Energy Board  
2300 Yonge Street, 27<sup>th</sup> Floor  
Toronto, ON M4P 1E4

Dear Ms. Long:

**Re: Enbridge Gas Inc. (“Enbridge Gas”)  
Ontario Energy Board (“OEB”) File No.: EB-2019-0159  
2021 Dawn Parkway Expansion Project & IRP Proposal - Update**

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Further to the Application and Evidence filed by Enbridge Gas on November 1, 2019, enclosed please find a letter from the Ministry of Energy, Northern Development and Mines (“MENDM”) dated January 30, 2020 notifying Enbridge Gas that the MENDM has completed its review of the Indigenous Consultation Report for the 2021 Dawn Parkway Expansion Project and has found the procedural aspects of consultation undertaken by Enbridge Gas to be satisfactory. This letter is an update and can be inserted into Enbridge Gas’s pre-filed evidence at Exhibit A, Tab 12, Attachment 3.

If you have any questions, please contact the undersigned.

Sincerely,

[original signed by]

Adam Stiers  
Technical Manager, Regulatory Applications

c.c.: Guri Pannu (Enbridge Gas)  
Charles Keizer (Torys)  
Myriam Seers (Torys)  
EB-2018-0305 2019 Rates (Intervenors)

**EXHIBIT LIST**

**Evidence**

<u>Exhibit</u>	<u>Tab</u>	
A	1	Exhibit List
A	2	Application
A	3	Project Summary
A	4	Enbridge Gas System Overview
A	5	Market Dynamics
A	6	Need for Facilities
A	7	Facilities Planning
A	8	Project Costs and Economics
A	9	Engineering and Construction
A	10	Environmental Matters
A	11	Land Matters
A	12	Indigenous Consultation
A	13	Integrated Resource Planning Proposal

**Attachments**

<u>Exhibit</u>	<u>Tab</u>		
A	5	Attachment 1	2019 ICF Report
A	7	Attachment 1	Dawn Parkway Transmission System – Review of System Design
A	9	Attachment 1	General Techniques and Methods of Construction
A	10	Attachment 1	Kirkwall to Hamilton Project Environmental Report
A	10	Attachment 2	Comments on Kirkwall to Hamilton ER
A	11	Attachment 1	Pipeline Easement
A	11	Attachment 2	Temporary Land Use Agreement
A	11	Attachment 3	Landowner Complaint Resolution System
A	12	Attachment 1	Letter of Notice
A	12	Attachment 2	Letter of Delegation
A	12	Attachment 3	Letter of Sufficiency
A	12	Attachment 4	Indigenous Peoples Policy
A	12	Attachment 5	Indigenous Consultation Report: Summary Tables
A	12	Attachment 6	Indigenous Consultation Report: Log and Correspondence - REDACTED

**Schedules**

<u>Exhibit</u>	<u>Tab</u>		
A	2	Schedule 1	Kirkwall to Hamilton Project Map
A	3	Schedule 1	Glossary of Acronyms and Defined Terms
A	3	Schedule 2	Letters of Support
A	4	Schedule 1	Enbridge Gas Inc. System Map
A	4	Schedule 2	Enbridge Gas Inc. Dawn Hub and Storage Facilities
A	4	Schedule 3	Enbridge Gas Inc. Dawn Parkway System
A	5	Schedule 1	Increased Supply to Dawn
A	5	Schedule 2	Summary of Dawn to Kirkwall M12 Transportation Contracts
A	5	Schedule 3	Summary of Daily Kirkwall Receipts
A	6	Schedule 1	Dawn Parkway Firm Transportation Open Season Package
A	6	Schedule 2	Dawn Parkway Firm Transportation Reverse Open Season Package
A	7	Schedule 1	Dawn Parkway System Demands Winter 2019/2020
A	7	Schedule 2	Dawn Parkway System Demands Winter 2020/2021
A	7	Schedule 3	Dawn Parkway System Demands Winter 2021/2022
A	7	Schedule 4	Dawn Parkway System Demands Winter 2022/2023
A	7	Schedule 5	Dawn Parkway System Design Day Demands and Capacity
A	8	Schedule 1	Total Estimated Pipeline and Station Costs
A	8	Schedule 2	Stage 1 DCF - Listing of Key Input Parameters, Values and Assumptions
A	8	Schedule 3	Calculation of Annual Revenues Associated with Incremental Project Capacity
A	8	Schedule 4	Stage 1 DCF Analysis
A	8	Schedule 5	Stage 2 Benefit/Cost Analysis
A	8	Schedule 6	Stage 3 Economic Benefits from Infrastructure Spending
A	9	Schedule 1	Kirkwall – Hamilton Pipeline Project Schedule
A	11	Schedule 1	Proposed Project Location Map
A	11	Schedule 2	Landowner Line List - REDACTED

**ONTARIO ENERGY BOARD**

**IN THE MATTER OF** the Ontario Energy Board Act, 1998, S.O. 1998, c. 15, Schedule B, and in particular, sections 90 (1) and 97 thereof;

**AND IN THE MATTER OF** an Application by Enbridge Gas Inc. for an Order or Orders granting leave to construct natural gas pipelines and ancillary facilities in the City of Hamilton;

**AND IN THE MATTER OF** an Application by Enbridge Gas Inc. for an Order or Orders approving the proposed form of Pipeline Easement and form of Temporary Land Use Agreement.

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**ENBRIDGE GAS INCORPORATED**

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1. Enbridge Gas Inc. (“Enbridge Gas” or the “Applicant”) hereby applies to the Ontario Energy Board (the “OEB” or “Board”), pursuant to Section 90 (1) of the *Ontario Energy Board Act, 1998, S.O. 1998, c.15, Schedule B* (the “Act”), for an Order or Orders granting leave to construct approximately 10.2 kilometres of Nominal Pipe Size (“NPS”) 48 natural gas pipeline from an interconnect at the Kirkwall Valve Site to the Hamilton Valve Site in the City of Hamilton (the “Project”) by April 30, 2020.
2. Enbridge Gas also applies to the OEB, pursuant to Section 97 of the Act, for an Order or Orders approving the form of Pipeline Easement and form of Temporary Land Use Agreement found in the pre-filed evidence at Exhibit A, Tab 11, Attachment 1 and at Exhibit A, Tab 11, Attachment 2, by April 30, 2020.
3. Enbridge Gas also requests that the OEB determine that the Integrated Resource Planning (“IRP”) Proposal, as set out at Exhibit A, Tab 13, is reasonable and appropriate both as it relates to the Project and for application to future Enbridge Gas projects. If the OEB considers that it is not possible to make such a determination by April 30, 2020, then Enbridge Gas requests that the OEB segregate the IRP Proposal for application to future Enbridge Gas projects for review as a separate and distinct stand-alone application to ensure that Enbridge Gas’s ability to complete construction of the

proposed Project by the estimated November 1, 2021 in-service date is not compromised.

4. Enbridge Gas is bringing forward the IRP Proposal at this time, and as part of this Application: (i) in recognition of OEB direction in recent decisions in applications for leave to construct and in the OEB's Report of the Board on the DSM Mid-Term Review that Enbridge Gas should demonstrate consideration of conservation and energy efficiency alternatives; (ii) to seek IRP policy guidance that is essential to the assessment of IRP alternatives ("IRPAs") as non-facility alternatives to capital projects going forward; and (iii) to demonstrate that IRP is not a viable alternative to defer or avoid the Project.
3. Attached as Exhibit A, Tab 2, Schedule 1, is a map showing the general location of the proposed Project, associated facilities, municipalities, highways, railways and utility lines through, under, over, upon or across which the pipeline will pass.
4. The route and location for the proposed facilities associated with the Project were selected by an independent environmental consultant through the process outlined in the OEB's *Environmental Guidelines for the Location, Construction, and Operation of Hydrocarbon Pipelines and Facilities in Ontario, 7<sup>th</sup> Edition, 2016* (the "Environmental Guidelines").
5. The parties affected by this Application are the owners of lands, government agencies and municipalities over which the pipeline will be constructed, and Enbridge Gas's distribution customers. The persons affected by this Application are the customers resident or located in the municipalities, police villages, Indigenous communities and Métis organizations served by Enbridge Gas, together with those to whom Enbridge Gas sells gas, or on whose behalf Enbridge Gas distributes, transmits or stores gas. It is impractical to set out in this Application the names and addresses of such persons because they are too numerous.

6. Enbridge Gas requests that the OEB's review of this Application proceed by way of written hearing in English.
7. Enbridge Gas requests that the OEB issue the following Orders:
  - i. Pursuant to Section 90 (1) of the Act, an Order or Orders granting leave to construct the Project.
  - ii. Pursuant to Section 97 of the Act, an Order or Orders approving the form of Pipeline Easement Agreement found at Exhibit A, Tab 11, Attachment 1, and the form of Temporary Land Use Agreement found at Exhibit A, Tab 11, Attachment 2.
8. Enbridge Gas also requests that the OEB determine that Enbridge Gas's IRP Proposal in relation to the Project and for application to future Enbridge Gas projects, as set out at Exhibit A, Tab 13, is reasonable and appropriate.
9. Enbridge Gas requests that all documents relating to the Application and its supporting evidence, including the responsive comments of any interested party, be served on Enbridge Gas and its counsel as follows:

Enbridge Gas Inc.  
P.O. Box 2001  
50 Keil Drive North  
Chatham, Ontario N7M 5M1

Attention: Adam Stiers  
Technical Manager, Regulatory Applications – Regulatory Affairs  
Telephone: (519) 436-4558  
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Email: [astiers@uniongas.com](mailto:astiers@uniongas.com)  
[egiregulatoryproceedings@enbridge.com](mailto:egiregulatoryproceedings@enbridge.com)

**-and-**

Attention: Guri Pannu  
Senior Legal Counsel, Regulatory  
Telephone: (416) 758-4761  
Fax: (416) 495-5994  
Email: [guri.pannu@enbridge.com](mailto:guri.pannu@enbridge.com)

**-and-**

Torys  
Suite 3000, TD South Tower  
Box 270  
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M5K 1N2

Attention: Charles Keizer  
Myriam Seers  
Telephone: (416) 865-7512/7535  
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Email: [ckeizer@torys.com](mailto:ckeizer@torys.com)

Dated: November 1, 2019

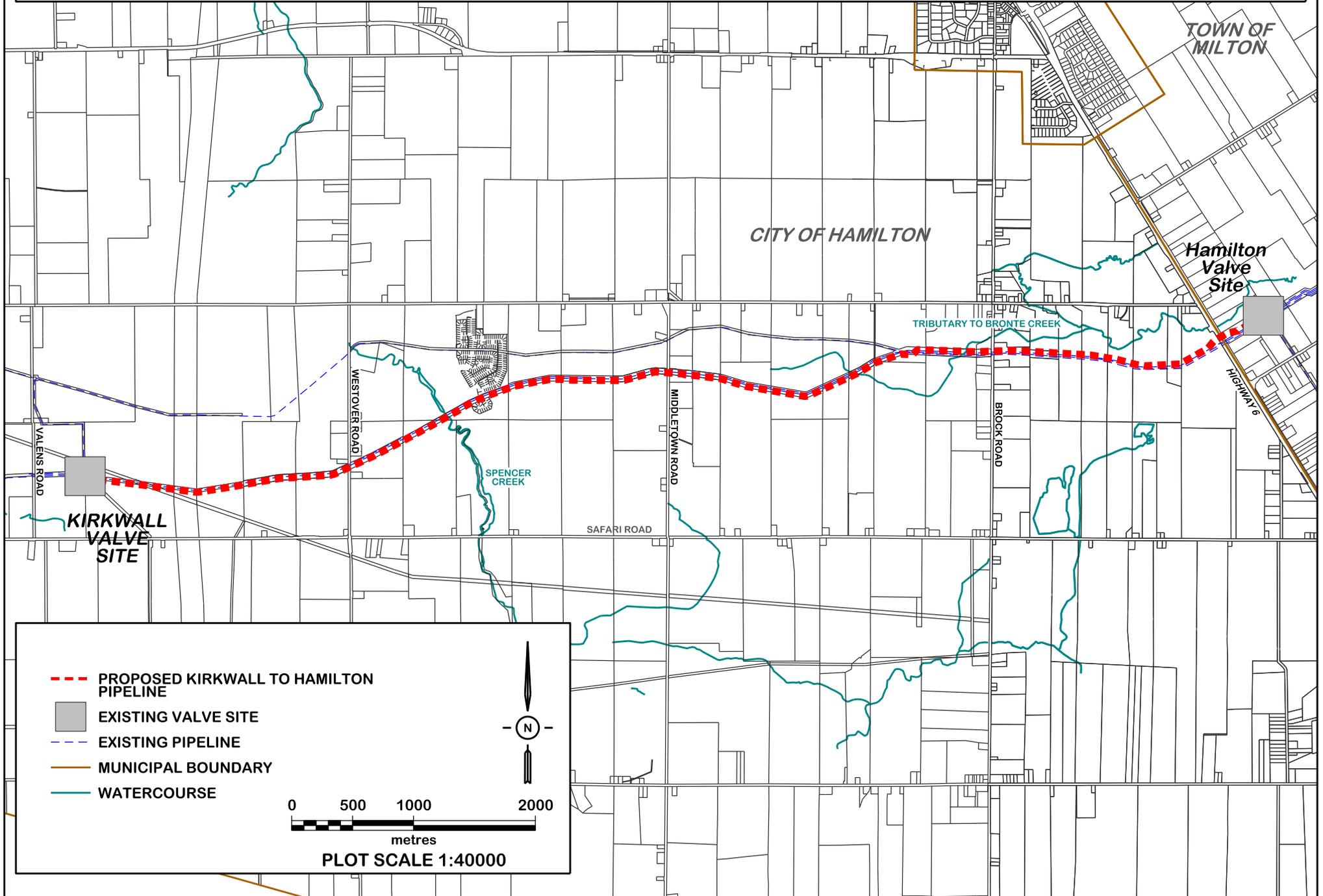
**Enbridge Gas Inc.**

*[original signed by]*

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Adam Stiers  
Technical Manager, Regulatory Applications – Regulatory Affairs

# ENBRIDGE GAS INC. KIRKWALL TO HAMILTON PROJECT



1 **PROJECT SUMMARY**

2 The purpose of this section of evidence is to provide an overview of Enbridge Gas Inc's  
3 ("Enbridge Gas") application (the "Application") requesting an Order or Orders under  
4 Section 90 of the *Ontario Energy Board Act, 1998* (the "Act") granting leave to construct  
5 approximately 10.2 kilometers of NPS 48 pipeline from the Kirkwall Valve Site to  
6 Hamilton Valve Site (the "Project").<sup>1</sup> Enbridge Gas is also requesting an order under  
7 Section 97 of the Act, approving the form of Pipeline Easement and Temporary Land  
8 Use Agreement for the Project. Enbridge Gas is also requesting that the OEB determine  
9 that the Integrated Resource Planning ("IRP") Proposal set out at Exhibit A, Tab 13, is  
10 reasonable and appropriate.

11  
12 This Tab of evidence is organized as follows:

- 13 1. Market Dynamics
- 14 2. Need for the Project and Assessment of Alternatives
- 15 3. Economic Evaluation and Forecasted Rate Impacts
- 16 4. Stakeholder Outreach, Lands, Environmental and Indigenous Consultation  
17 Matters
- 18 5. Integrated Resource Planning Proposal

19  

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<sup>1</sup> Enbridge Gas Distribution Inc. ("EGD") and Union Gas Limited ("Union") were Ontario corporations incorporated under the laws of the Province of Ontario carrying on the business of selling, distributing, transmitting and storing natural gas with the meaning of the Ontario Energy Board Act, 1998. Effective January 1, 2019, EGD and Union amalgamated to become Enbridge Gas Inc.

1 For ease of reference, a Glossary of Acronyms and Defined Terms is provided at  
2 Exhibit A, Tab 3, Schedule 1.

3

#### 4 **1. Market Dynamics**

5 As set out at Exhibit A, Tab 5, North America continues to experience changes in  
6 natural gas markets. Namely, demand for natural gas to serve traditional and emerging  
7 markets is expected to support increased production from unconventional sources of  
8 supply. Demand for lower cost production from these unconventional sources of supply,  
9 in Ontario, Québec, the Maritimes and the U.S. Northeast is driving the need to develop  
10 new infrastructure to deliver this supply to markets. Much of the infrastructure has been  
11 built upstream of the Dawn Parkway System to deliver incremental supply to the Dawn  
12 Hub. However, incremental Dawn Parkway System transmission capacity is required to  
13 deliver this supply to markets downstream of the Dawn Hub.

14

15 Following the completion of the 2017 Dawn Parkway Project, a Dawn Parkway System  
16 capacity surplus existed. All surplus Dawn Parkway System capacity was subsequently  
17 contracted to serve the demands of EGD rate zone, Union rate zones and ex-franchise  
18 U.S. Northeast and Eastern Canadian utility customers for incremental Dawn to  
19 Parkway transportation services commencing in each of winter 2018/2019, winter  
20 2019/2020 and winter 2020/2021. These incremental demands are inextricably linked to  
21 the need to further expand the Dawn Parkway System to serve new in-franchise and ex-  
22 franchise demand growth beginning winter 2021/2022. Had surplus Dawn Parkway

1 System capacity not been contracted to serve those ex-franchise demands from 2018-  
2 2020, it could have further served the needs of in-franchise customers in the EGD rate  
3 zone and Union rate zones commencing in the winter 2021/2022 as detailed in Exhibit  
4 A, Tab 6.

5  
6 To meet changing conditions in supply and transportation dynamics, expansion of  
7 pipeline facilities within Ontario remains critical for Ontario, Québec, the Maritimes and  
8 U.S. Northeast consumers. As set out at Exhibit A, Tab 5, expansion of the Dawn  
9 Parkway System improves access to: (i) the liquidity and diversity of competitively  
10 priced supply at the Dawn Hub; (ii) storage capacity and flexible storage services  
11 available at the Dawn Hub; and (iii) the diversity and security of new, cost competitive  
12 supply from the Marcellus and Utica shale formations and from Western Canada.  
13 This evidence is further supported by the findings in ICF International's ("ICF") report  
14 entitled Impact of Changing Supply Dynamics on the Ontario Natural Gas Market ("2019  
15 ICF Report") at Exhibit A, Tab 5, Attachment 1, including:

16 ICF concludes that the major natural gas market changes currently underway  
17 provide incentives over the long term for utilities and large gas customers in  
18 Ontario and Québec, and in the U.S. Northeast to continue to hold pipeline  
19 capacity in Ontario and to increase reliance on supplies from the  
20 Marcellus/Utica shale. The Dawn Parkway System provides economic  
21 access to these supplies at a liquid trading hub with significant pipeline and  
22 storage infrastructure to ensure operational flexibility.<sup>2</sup>  
23

---

<sup>2</sup> Exhibit A, Tab 5, Attachment 1, p. 42.

1 **2. Need for the Project and Assessment of Alternatives**

2 As set out at Exhibit A, Tab 6, Union Gas Limited (“Union”) conducted an open season  
3 from August 29, 2018 to November 16, 2018 offering new Dawn Parkway System  
4 transportation capacity starting as early as November 1, 2021 (the “Open Season”). In  
5 total, approximately 185 TJ/d of incremental Dawn to Parkway transportation capacity  
6 was allocated to in-franchise and ex-franchise customers, as follows:

- 7 • Approximately 20,000 GJ/d was awarded to U.S. Northeast utilities – Bangor  
8 Natural Gas Company and Northern Utilities Inc.;
- 9 • 125,000 GJ/d was awarded to customers in the Enbridge Gas Distribution  
10 (“EGD”) rate zone – consistent with Enbridge Gas’s EGD Rate Zone Supply  
11 Option Analysis filed in the 5 Year Gas Supply Plan;<sup>3</sup> and
- 12 • 40,000 GJ/d was allocated to customers in the Union rate zones – consistent  
13 with Enbridge Gas’s Union Rate Zone Supply Option Analysis filed in the 5 Year  
14 Gas Supply Plan and with in-franchise growth rates forecasted for the Union rate  
15 zones.<sup>4</sup>

16  
17 This incremental demand for Dawn Parkway System transportation capacity is  
18 forecasted to cause capacity shortfalls on the Dawn Parkway System as early as the  
19 winter of 2021/2022, necessitating incremental Dawn Parkway System capacity.

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<sup>3</sup> EB-2019-0137, Enbridge Gas Inc. 5 Year Gas Supply Plan, May 1, 2019, pp. 40-42.

<sup>4</sup> EB-2019-0137, Enbridge Gas Inc. 5 Year Gas Supply Plan, May 1, 2019, p. 79-80.

1 As such, Enbridge Gas assessed a variety of facility and non-facility alternatives, as set  
2 out at Exhibit A, Tab 7.

3  
4 Enbridge Gas ultimately determined that the most reliable and economic alternative  
5 involves the construction of approximately 10.2 kilometers NPS 48 pipeline from the  
6 Kirkwall Valve Site to Hamilton Valve Site (the proposed Project) to create  
7 approximately 92 TJ/d of Dawn Parkway System capacity at an estimated capital cost of  
8 \$203.5 million.<sup>5</sup> This conclusion is supported by ICF, who assessed the longer-term  
9 viability of the Project in its 2019 ICF Report and stated that,

10 ICF finds that the proposed capacity expansion on the Dawn Parkway System is  
11 supported by market trends and the risk of future capacity turn-back is  
12 limited....<sup>6</sup>  
13

14 As set out at Exhibit A, Tab 9, the Project will be completed in accordance with all  
15 relevant regulations and safety standards in time to serve contracts beginning  
16 November 1, 2021. To meet this timeline, Enbridge Gas requests that the OEB issue a  
17 Decision on this Application no later than April 30, 2020.

18

### 19 **3. Economic Evaluation and Forecasted Rate Impacts**

20 As set out at Exhibit A, Tab 8, the Project is in the public interest and the tests set out in  
21 E.B.O. 134 are appropriate for the purposes of evaluating the Project. Based on these

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<sup>5</sup> Excluding indirect overheads, the total estimated incremental cost of the Project is \$184.1 million. Enbridge Gas anticipates it will have spent approximately \$1.7 million related to the Project by December 2019.

<sup>6</sup> Exhibit A, Tab 5, Attachment 1, p. 42.

1 tests, the Project has a net present value of \$3.5 billion to \$5.2 billion and is  
2 economically feasible.

3

4 The OEB approved the use of the Incremental Capital Module (“ICM”) for Enbridge Gas  
5 in the MAADs Decision as a mechanism for the funding of incremental capital during the  
6 deferred rebasing period.<sup>7</sup> The Project meets the criteria for rate recovery through the  
7 ICM mechanism and Enbridge Gas expects to request approval under Section 36 of the  
8 Act related to ICM rate recovery of the Project as part of its 2021 Rates application.

9

10 Enbridge Gas has estimated forecast bill impacts under the ICM funding mechanism  
11 based on the average annual revenue requirement of the Project from 2021 to 2023.

12

13 For in-franchise residential customers in the EGD rate zone and Union rate zones, the  
14 Project is expected to be relatively small and estimated to increase the total bill by less  
15 than \$1.50 per year.

16

17 For ex-franchise customers contracted for Rate M12 Dawn-Parkway transportation  
18 service, the Project is expected to increase the M12 rate by approximately \$0.004/GJ/d.  
19 When compared to the Dawn Reference Price of \$2.922/GJ (per October 2019 QRAM),  
20 the increase in the M12 Dawn-Parkway transportation rate of \$0.004/GJ/d represents  
21 approximately 0.1%.

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<sup>7</sup> EB-2017-0306/0307, Decision and Order, August 30, 2018, pp. 30-34.

1 **4. Stakeholder Outreach, Lands, Environmental and Indigenous Consultation**

2 **Matters**

3 To ensure area residents and other key stakeholders were made aware of the Project,  
4 Enbridge Gas implemented a stakeholder outreach plan. As set out at Exhibit A, Tab  
5 10, and at Exhibit A, Tab 11, to inform and solicit input from Indigenous communities,  
6 municipalities, landowners, tenants and the public with respect to the proposed Project,  
7 Enbridge Gas: (i) met with affected stakeholders; (ii) held public information sessions in  
8 the Project area; and (iii) mailed a letter summarizing the Project to affected  
9 stakeholders. Enbridge Gas has subsequently received letters of support for the Project  
10 from the Hamilton Chamber of Commerce and the Flamborough Chamber of  
11 Commerce (see Exhibit A, Tab 3, Schedule 2). Enbridge Gas will continue public  
12 consultation throughout the construction of the Project, until complete.

13  
14 As set out at Exhibit A, Tab 10, there are no environmental concerns that cannot be  
15 mitigated and there are no significant cumulative impacts resulting from the Project.

16  
17 As set out at Exhibit A, Tab 11, as of the date of this filing, Enbridge Gas has acquired  
18 approximately 75% of the land rights required for permanent easement associated with  
19 the Project and has not identified any strong opposition to the Project.

20  
21 As set out at Exhibit A, Tab 12, Enbridge Gas has engaged affected Indigenous  
22 communities in meaningful consultation regarding the Project on behalf of the Ministry

1 of Energy, Northern Development and Mines (“MENDM”) and has not identified any  
2 strong opposition to the Project.

### 3 4 **5. Integrated Resource Planning Proposal**

5 As set out at Exhibit A, Tab 13, Enbridge Gas is seeking a determination by the OEB  
6 that the IRP policy direction set out in its IRP Proposal, which is essential to the  
7 assessment of IRP alternatives (“IRPAs”), is reasonable and appropriate as it relates to  
8 the Project and in relation to future Enbridge Gas projects. Receiving adequate policy  
9 direction, in the nature of that set out in the IRP Proposal, is a necessary first-step  
10 toward creating actionable IRPs/IRPAs with the objective of eventually avoiding or  
11 deferring future expansion/reinforcement projects.

12  
13 Enbridge Gas demonstrates at Exhibit A, Tab 7 and at Exhibit A, Tab 13, that IRPAs are  
14 not viable options to avoid or defer the Project, which is required to meet demonstrated  
15 demand beginning November 1, 2021. Further, at Exhibit A, Tab 13, Enbridge Gas also  
16 clarifies the role of IRP in-relation to the feasibility and cost-effectiveness of IRPAs  
17 compared to high-volume transmission and distribution projects more generally.

18  
19 Enbridge Gas is committed to considering IRPAs going forward, in accordance with the  
20 framework set out in the IRP Proposal, immediately following the identification of  
21 potential need for future facility expansion/reinforcement projects in the Asset  
22 Management Plan (“AMP”). This approach will ensure that Enbridge Gas has the

- 1 appropriate lead-time to fully assess and put forward IRPAs that can effectively reduce
- 2 peak period demands and defer or avoid the need to construct comparable facility
- 3 alternatives. Enbridge Gas will seek OEB approval for the recovery of IRPA-related
- 4 costs through future applications as required.

**Glossary of Acronyms and Defined Terms**

2019 ICF Report	ICF Report - Impact of Changing Supply Dynamics on the Ontario Natural Gas Market
Act	The Ontario Energy Board Act, 1998
Albion	The Albion Road Custody Transfer Station
Annual Demand	Is the amount of natural gas consumed over a year time-frame which can be gas year or calendar year. Annual demand is used primarily for gas supply planning purposes to ensure sufficient gas is available in storage to supply customers during the winter and to determine upstream transportation requirements.
Applicant	Enbridge Gas Inc.
Application	The Enbridge Gas application requesting: an Order or Orders under Section 90 of the Act, granting leave to construct the proposed Project; an order under Section 97 of the Act, approving the form of Pipeline Easement and Temporary Land Use Agreement for the proposed Project; and that the OEB make a determination that the IRP Proposal is reasonable and appropriate.
APS	2019 Integrated Ontario Electricity and Natural Gas Achievable Potential Study
AMI	Advanced Metering Infrastructure
AMP	Asset Management Plan
Bcf	Billion Cubic Feet
BGS	Bluewater Gas Storage LLC
Board	The Ontario Energy Board
Bright	The Bright Compressor Station
CH	Conservation Halton
CNG	Compressed Natural Gas
Dawn	The Dawn Compressor Station
Design Day	Is the degree day and demand conditions under which the customer requirements and capacity of the system is determined.
Design Day Demand	Is the forecast highest demand day used for planning purposes including Gas Supply Planning, Transmission Planning, Storage Planning and Distribution Planning. Design day demand forecasts are used to estimate potential demand in order to plan to ensure adequate supply and facilities are available to serve the forecast demand at design day conditions.
DCF	Discounted Cash Flow
DCQ	Daily Contract Quantity
DFO	Department of Fisheries and Oceans Canada
DR	Demand Response
DSM	Demand Side Management
DTE	DTE Energy
EGD	Enbridge Gas Distribution Inc.
EGT	Enbridge Gas Transmission delivery point where the NPS 42 GTA pipeline (segment A) interconnects to Parkway
Enbridge Gas	Enbridge Gas Inc.
Environmental Guidelines	The OEB's Environmental Guidelines for the Location, Construction, and Operation of Hydrocarbon Pipelines and Facilities in Ontario, 7 <sup>th</sup> Edition, 2016
ER	Dawn Parkway System Expansion: Kirkwall-Hamilton Pipeline Section: Environmental Report
Geo-Targeted DSM	Geographically targeted DSM or enhanced targeted energy efficiency
GJ	Gigajoule
GLC	Great Lakes Pipeline Canada
GLGT	Great Lakes Gas Transmission Pipeline
GRCA	Grand River Conservation Authority
GTA	Greater Toronto Area
GTA Line	Enbridge Gas Transmission assets from Parkway to the Albion Road Station in Toronto (also known as the Enbridge Gas Transmission Line or EGT Line)
HCA	Hamilton Conservation Authority
ICF	ICF International
ICM	Incremental Capital Module
IDC	Interest During Construction
IRP	Integrated Resource Planning
IRPA	Integrated Resource Planning Alternative
IRP Report	Annual Integrated Resource Planning Report
kPa	Kilopascal
Kirkwall	The Kirkwall Custody Transfer Station
Lisgar	The Lisgar Custody Transfer Station
LNG	Liquefied Natural Gas
Lobo	The Lobo Compressor Station
LRA	Landowner Relations Agent
LTFP	Long Term Fixed Price
MECP	Ministry of Environment, Conservation and Parks
MENDM	Ministry of Energy, Northern Development and Mining
mm	Milimeter
MMcf	Million cubic feet
Mpa	Megapascal
MOP	Maximum Operating Pressure
Niagara Link	Niagara Gas Transmission Limited LINK Pipeline

NPS	Nominal Pipe Size
NPV	Net Present Value
OEB	The Ontario Energy Board
OPCC	Ontario Pipeline Coordination Committee
Open Season	The Dawn Parkway System firm transmission capacity offering for M12 or M12X services for volumes of up to 350,000 GJ/d starting November 1, 2021 or volumes of up to 250,000 GJ/d starting November 1, 2022. The Open Season commenced August 29, 2018 and closed November 16, 2018.
Panhandle Eastern	Panhandle Eastern Pipeline Company L.P.
Parkway	The Parkway Compressor Station which includes the Parkway East and Parkway West compressor stations located in Mississauga.
Parkway - Compressed	The Parkway - Compressed delivery point is downstream of the compressor units at Parkway and is also known as the discharge side of Parkway. The gas stream to this delivery point is compressed.
Parkway - Uncompressed	The Parkway - Uncompressed delivery point is upstream of the compressor units at Parkway and is also known as the suction side of Parkway. The gas stream to this delivery point is not compressed.
PDO	Parkway Delivery Obligation - the volume of natural gas which is to be supplied to Enbridge Gas on behalf of Union South rate zone system supply and direct purchase customers at the discharge or compressed side of Parkway.
Peak Day	Is the gas day where the highest actual throughput is measured for a specified time period which could occur during a month, winter, calendar year etc. Throughput on this day is often lower than design day demand forecast, due to a number of differences, the most notable of which is the actual degree day experienced.
Peak Hour	Is the hour during the design day where gas usage is at its maximum. Peak hour is also the highest actual hourly demand for a specified period of time which could occur during a month, winter, year etc. Peak hour can be measured through the city gate stations, but not necessarily at a customer level.
Peak Hour Demand	Is the forecast highest hourly demand used for planning purposes by Distribution Planning. Peak hour demand forecasts are used to estimate potential demand in order to plan to ensure adequate facilities are available to serve the forecast peak hour demand at design day conditions.
PI	Profitability Index
PJ	Petajoule
PNGTS	Portland Natural Gas Transmission System
Project	10.2 kilometers of NPS 48 pipeline from an interconnect at the Kirkwall Valve Site to the Hamilton Valve Site in the City of Hamilton, together with ancillary facilities. Provides 92,174 GJ/d of incremental Dawn Parkway System capacity beginning in the fall of 2021 at an estimated cost of approximately \$204 million.
Reverse Open Season	The Dawn Parkway System firm transportation capacity return offering. The Reverse Open Season commenced November 26, 2018 and closed November 30, 2018.
RoW	Right of Way
Stantec	Stantec Consulting Limited
STAR	Storage and Transportation Access Rule
St. Clair Pipelines	St. Clair Pipelines L.P.
TC Energy Mainline	TC Energy Canadian Mainline Pipeline
Tcf	Trillion Cubic Feet
Transportation Contracts	Precedent Agreements and Financial Backstopping Agreements
Union	Union Gas Limited
Vector	Vector Pipeline L.P.
WCSB	Western Canadian Sedimentary Basin

June 12, 2019

Enbridge Gas Inc.  
Attention: Mr. Nick Klip  
Operations Manager – Hamilton  
918 South Service Road  
Stoney Creek, ON, L8E 5M4  
[nklipjr@uniongas.com](mailto:nklipjr@uniongas.com)

**RE: Enbridge Gas Kirkwall-Hamilton Project**

Dear Mr. Klip:

The City of Hamilton is in a very strong economic position. With low unemployment, high growth, an excellent standard of living, and low utility costs, more and more companies are expanding operations in the City or relocating from other jurisdictions. It is the Chamber's goal to keep this momentum going. As such, I am writing you on behalf of the Chamber to indicate our support for the Enbridge Gas Kirkwall-Hamilton Project.

The Hamilton Chamber of Commerce has served as an anchor institution and the definitive voice of the local business community since 1845. Well known for our industrial legacy, Hamilton is undergoing an unprecedented period of re-invention; one marked by vibrant urban revival, growth in advanced manufacturing, agri-business, fintech and innovation, as well as an abundance of world-class researchers, clinicians, and health-sciences practitioners.

The Chamber knows that building healthy and sustainable cities requires reliable and modern infrastructure to serve as the foundation for growth. The increase in natural gas capacity across Enbridge Gas' system as a result of this project will provide more opportunity for growth for companies in Hamilton. Natural gas is a critical component to the success of businesses in Hamilton – providing low cost, affordable energy when every dollar counts. Further project benefits specific to the local Hamilton area, such as an increase in temporary employment and local sourcing of goods and services, are also critical to keeping the economic development momentum going across Hamilton.

With this in mind, the Hamilton Chamber of Commerce is strongly in support of this project and we look forward to an ongoing positive relationship with Enbridge Gas.

Sincerely,



Keanin Loomis  
President & CEO  
Hamilton Chamber of Commerce



## Flamborough Chamber of Commerce

#113- 7 Innovation Dr. Flamborough, ON L9H 7H9  
T: 905-689-7650 F: 905-689-1313

---

June 3, 2019

Enbridge Gas Inc.  
Attention: Mr. Nick Klip  
Operations Manager – Hamilton  
918 South Service Road  
Stoney Creek, ON, L8E 5M4  
[nklipjr@uniongas.com](mailto:nklipjr@uniongas.com)

RE: Enbridge Gas Kirkwall-Hamilton Project

Dear Mr. Klip:

On behalf of the Flamborough Chamber of Commerce (FCC), I am writing to indicate our support for the aforementioned Enbridge Gas Kirkwall-Hamilton Project.

The FCC is the 'Voice of Business' in Greater Flamborough-Hamilton area, and has been serving the business community in the area since 1982. With over 200 member companies across all business sectors, we take great pride in advancing economic development in the Greater Flamborough-Hamilton Area.

The Kirkwall-Hamilton project will provide multiple benefits for the Greater Flamborough-Hamilton Area. First, it will meet an increased demand for natural gas along Enbridge Gas' Dawn-Parkway transmission system, which supports the reliable movement of affordable natural gas to Ontario homes and businesses, including many FCC members. Second, the project will provide an economic boost to the Greater Flamborough-Hamilton Area via an increase in local employment from temporary construction jobs, and via the potential for local sourcing of goods and materials for the project.

With this in mind, the Flamborough Chamber of Commerce is strongly in support of this project and looks forward to an ongoing positive relationship with Enbridge Gas.

Sincerely,

A handwritten signature in black ink, appearing to read 'Matteo Patricelli'.

**Matteo Patricelli**  
Executive Director  
Flamborough Chamber of Commerce  
[matteo@flamboroughchamber.ca](mailto:matteo@flamboroughchamber.ca)  
O: 905-689-7650 M: 289-489-6913

1 **ENBRIDGE GAS SYSTEM OVERVIEW**

2 The purpose of this section of evidence is to provide an overview of the Enbridge Gas  
3 system, including the Dawn Hub and the Dawn Parkway System.

4  
5 This Tab of evidence is organized as follows:

- 6 1. Enbridge Gas Service Districts
- 7 2. The Dawn Hub
- 8 3. The Dawn Parkway System

9  
10 Enbridge Gas serves approximately 3.7 million customers in over 500 communities in  
11 Ontario through an integrated network of over 84,000 kilometres of natural gas  
12 pipelines.<sup>1</sup> Enbridge Gas operates storage and transmission assets that include  
13 approximately 280 Bcf (approximately 304 PJ) of underground natural gas storage at  
14 the Dawn Hub as well as the Dawn Parkway System,<sup>2</sup> which connects the Dawn Hub to  
15 consuming markets in Ontario, Québec, the Maritimes and the U.S. Northeast.  
16 Throughput serving Enbridge Gas in-franchise customers during 2018 was over 920 Bcf  
17 (approximately 1,014 PJ).<sup>3</sup> Throughput serving Enbridge Gas ex-franchise storage and  
18 transmission customers during 2018 was 902 Bcf (approximately 994 PJ). In total,  
19 Enbridge Gas transported about 1.8 Tcf (approximately 2,000 PJ) of natural gas in

---

<sup>1</sup> This amount does not include distribution service lines in the EGD rate zone (over 38,000 km) or the Union rate zones (nearly 28,000 km).

<sup>2</sup> EB-2017-0306/0307, Exhibit JT2.9 (April 6, 2018); EB-2017-0306/0307, Exhibit C.SEC.23 (April 25, 2018).

<sup>3</sup> In the EGD rate zone and Union rate zones combined.

1 2018, which is slightly greater than all of the natural gas consumed in Ontario and  
2 Québec or approximately 5% of U.S. and Canadian demand.

3

#### 4 **1. Enbridge Gas Service Districts**

5 As detailed in its 5 Year Gas Supply Plan,<sup>4</sup> Enbridge Gas service territories are divided  
6 into 3 rate zones: (i) the EGD rate zone; (ii) the Union North rate zone; and (iii) the  
7 Union South rate zone. A map of the Enbridge Gas system including district boundaries  
8 is provided at Figure 4-1 and at Exhibit A, Tab 4, Schedule 1.

9

#### 10 **The EGD Rate Zone**

11 The EGD rate zone includes customers located in three regions: (i) Central; (ii) Niagara;  
12 and (iii) Eastern.

13 i) The Central region includes the greater Toronto area (“GTA”) from Mississauga  
14 to the west, to Peterborough to the east and Barrie to the north.<sup>5</sup>

15 ii) Niagara region includes the Niagara peninsula from east of Stoney Creek to the  
16 west, to Niagara Falls to the east and Port Colborne to the south.

17 iii) Eastern region includes Ottawa, Gatineau (Gazifère), Brockville and Deep River  
18 and surrounding area.

19

20

---

<sup>4</sup> EB-2019-0137, Enbridge Gas Inc. 5 Year Gas Supply Plan, May 1, 2019, pp. 28 and 67.

<sup>5</sup> The Central region is further sub-divided into the GTA West (former EGD Areas 20, 50, and 80), Toronto (former EGD Area 10) and GTA East districts (former EGD Areas 30 and 40).

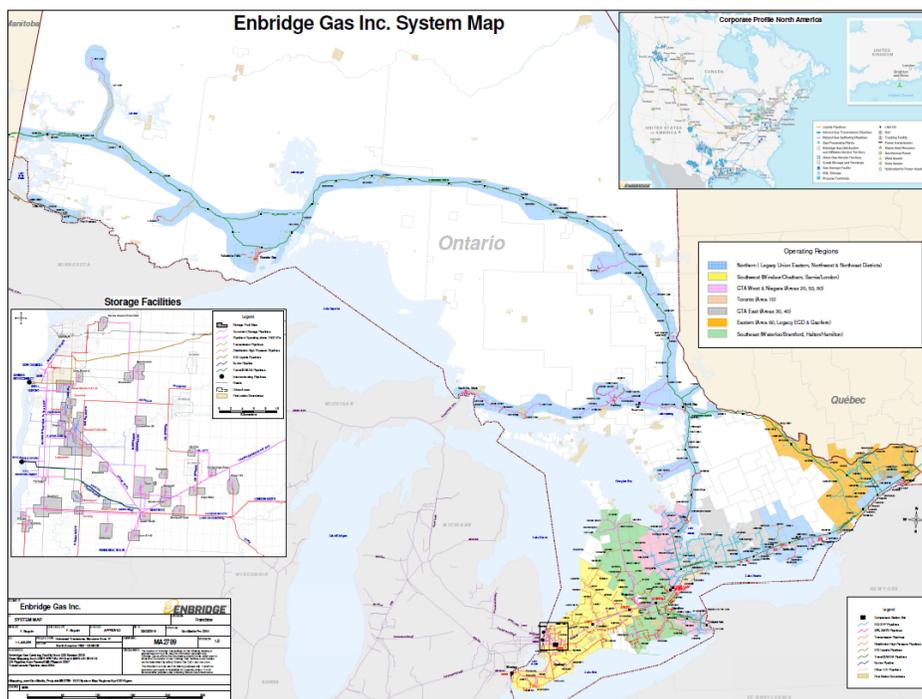
1 **The Union Rate Zones**

2 The Union rate zones are divided into: (i) the Union North rate zone; and (ii) the Union  
3 South rate zone.

4 i) The Union North rate zone includes areas from north of Barrie, to north and west  
5 of North Bay and from east of Bowmanville, to south of Ottawa.<sup>6</sup>

6 ii) The Union South rate zone is split into the Southwest District and Southeast  
7 District and includes areas from west of Mississauga and south of Georgian  
8 Bay.<sup>7</sup>

9 **Figure 4-1**  
10 **Enbridge Gas Inc. System and Service Districts Map**



11

<sup>6</sup> Former Union Northeast, Northwest and Eastern Districts.

<sup>7</sup> Southwest District is the former Union Windsor/Chatham and London/Sarnia Districts. Southeast District is the former Union Waterloo/Brantford and Hamilton/Halton Districts.

1 **2. The Dawn Hub**

2 Enbridge Gas operates the Dawn Hub, which is one of the largest and most important  
3 North American natural gas market hubs. The Dawn Hub consists of a combination of  
4 interconnecting natural gas pipelines and underground natural gas storage facilities and  
5 is the primary source of supply for the Dawn Parkway System. Accordingly, the Board  
6 recognized the importance of the Dawn Hub in the Natural Gas Electricity Interface

7 **Review:**

8 The development of the Dawn Hub has brought substantial benefits to consumers in  
9 Ontario and to other market participants.<sup>8</sup>

10

11 The Dawn Hub is also connected to a significant amount of underground natural gas  
12 storage within the Great Lakes region. In Ontario, Enbridge Gas operates 280 Bcf  
13 (approximately 304 PJ) of natural gas storage in 35 underground storage pools  
14 connected to the Dawn Hub. The Dawn Hub is also connected, through various  
15 upstream natural gas transmission pipelines, to approximately 671 Bcf (approximately  
16 739 PJ) of underground natural gas storage in Michigan as well as storage in other U.S.  
17 states. A map of the Enbridge Gas storage facilities connected to the Dawn Hub is  
18 shown at Figure 4-2 and at Exhibit A, Tab 4, Schedule 2.

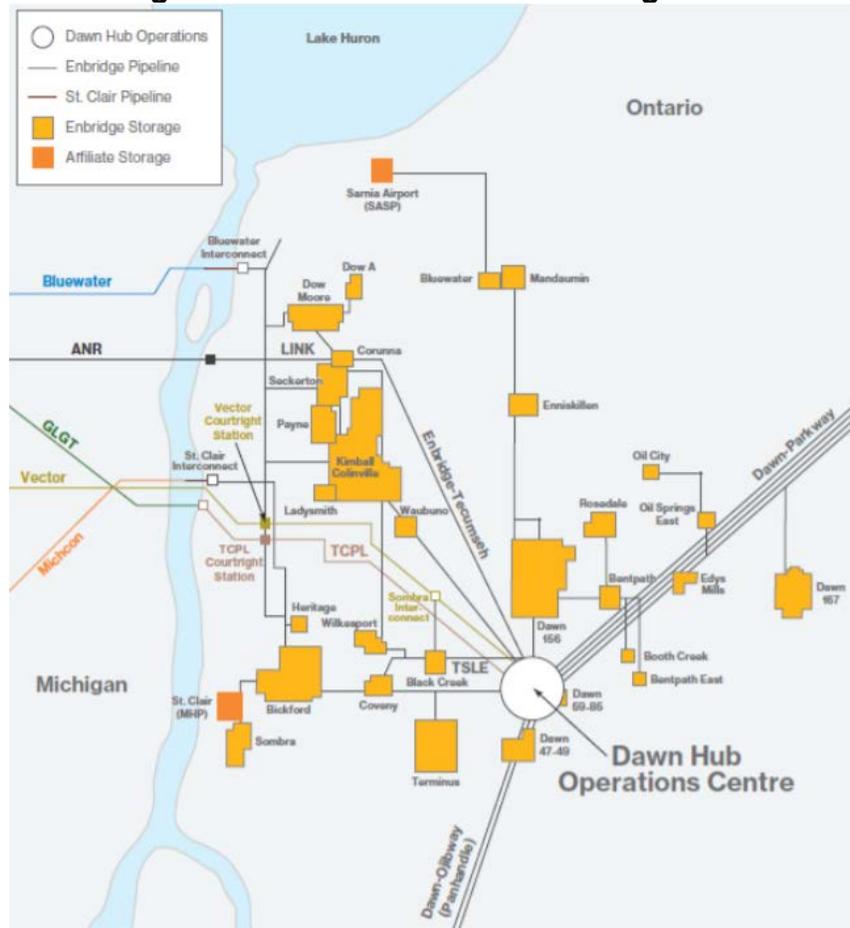
19

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<sup>8</sup> EB-2005-0551, Decision With Reasons, November 7, 2006, p. 44.

1  
2

**Figure 4-2**  
**Enbridge Gas Inc. Dawn Hub and Storage Facilities**



3

### 3. The Dawn Parkway System

Enbridge Gas operates the Dawn Parkway System which includes a series of parallel natural gas transmission pipelines and compressor stations. The Dawn Parkway System transports natural gas between the Dawn Compressor Station (“Dawn”), located near Sarnia, and the Parkway Compressor Station (which includes the Parkway East and Parkway West compressor stations) (“Parkway”), located in Mississauga. Enbridge Gas operates two additional compressor stations on the Dawn Parkway System: (i) the

10

1 Lobo Compressor Station (“Lobo”) located near London; and (ii) the Bright Compressor  
2 Station (“Bright”) located between Woodstock and Kitchener.

3

4 Enbridge Gas Transmission assets continue from Parkway as a single feed known as  
5 the Greater Toronto Area Line (“GTA Line”) or Enbridge Gas Transmission Line (“EGT  
6 Line”) to the Albion Road Station (“Albion”), located in Toronto (see Exhibit A, Tab 7 for  
7 additional detail).

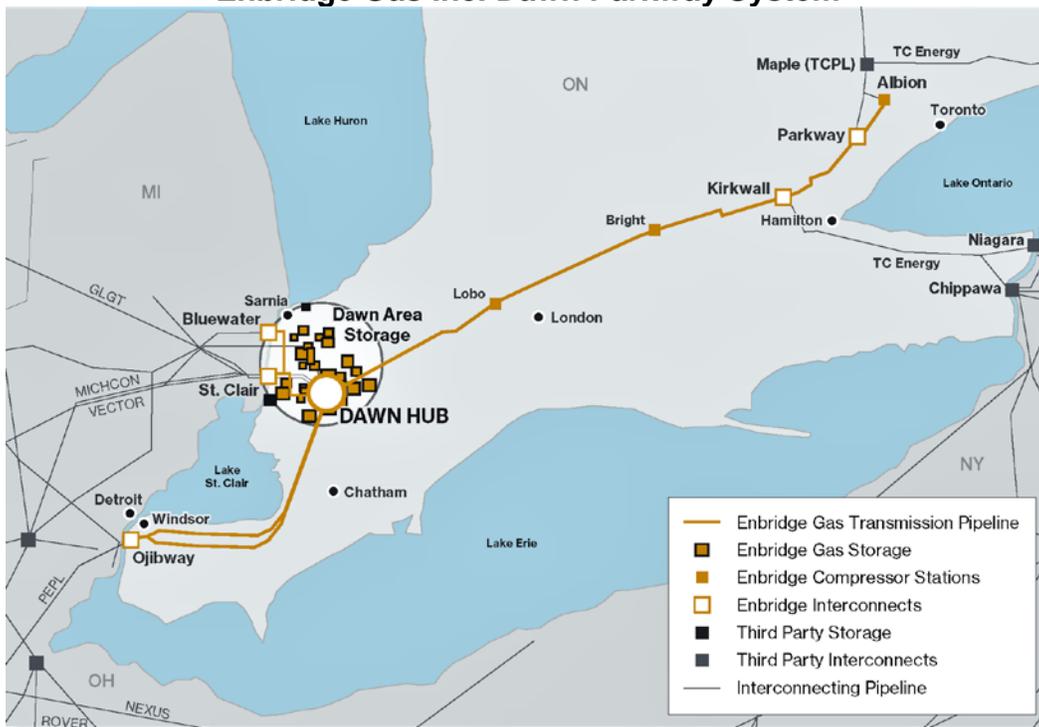
8

9 A map of the Enbridge Gas Dawn Parkway System and Enbridge Gas Transmission  
10 assets is provided at Figure 4-2 and at Exhibit A, Tab 4, Schedule 3.

11

12

**Figure 4-3**  
**Enbridge Gas Inc. Dawn Parkway System**



13

1 The Dawn Parkway System connects with third party pipeline systems at four locations:

2 1) At Parkway, the Dawn Parkway System connects to the TC Energy Canadian  
3 Mainline (“TC Energy Mainline”) at the Parkway compressor site at a delivery  
4 point referred to as Parkway (TC Energy).<sup>9</sup> A portion of the TC Energy  
5 Mainline, known as the Domestic Line, is also connected to Parkway (TC  
6 Energy) and connects to the import/export point at Niagara at the Ontario/New  
7 York border. TC Energy’s Domestic Line connects to Tennessee Gas Pipeline,  
8 Dominion Transmission and National Fuel Gas at the Niagara import/export  
9 point. East of Parkway, the TC Energy Mainline connects to Québec and to the  
10 U.S. Northeast through the Iroquois Pipeline and through the Portland Natural  
11 Gas Transmission System (“PNGTS”), respectively.

12 2) Near Hamilton, the Dawn Parkway System connects to the TC Energy Mainline  
13 at the Enbridge Gas Kirkwall Custody Transfer Station (“Kirkwall”). This portion  
14 of the TC Energy Mainline, known as the Niagara Export Line, connects to the  
15 import/export points at Niagara and Chippawa at the Ontario/New York border.  
16 TC Energy’s Niagara Export Line connects to Tennessee Gas Pipeline,  
17 Dominion Transmission and National Fuel Gas at the Niagara import/export  
18 point and to the Empire Pipeline at the Chippawa import/export point.

19 3) At the Dawn Hub, the Dawn Parkway System connects to most of North  
20 America’s major supply basins through a number of pipelines, including: Vector

---

<sup>9</sup> Interconnects between the Dawn Parkway System and the EGD rate zone exist at four locations: (i) Parkway (Consumers 1 and Consumers 2); (ii) Parkway (EGT); (iii) Parkway (TC Energy); and (iv) the Lisgar Custody Transfer Station (“Lisgar”) located two kilometers east of Parkway.

1 Pipeline L.P. (“Vector”), Panhandle Eastern Pipeline Company L.P.  
2 (“Panhandle Eastern”) via the Enbridge Gas Panhandle system, Great Lakes  
3 Gas Transmission Pipeline (“GLGT”) via Great Lakes Pipeline Canada (“GLC”),  
4 DTE Energy (“DTE”) via St. Clair Pipelines L.P. (“St. Clair Pipelines”),  
5 Bluewater Gas Storage, LLC (“BGS”) via Bluewater Pipeline (St. Clair Pipelines  
6 L.P.) and ANR via Niagara Gas Transmission Limited LINK Pipeline (“Niagara  
7 Link”).

- 8 4) Near the Albion Road Station, located near the intersection of Albion Road and  
9 Steeles Avenue in Toronto, the GTA Line connects directly to TC Energy’s  
10 Kings North pipeline. The Enbridge Gas GTA Line and the TC Energy Kings  
11 North pipeline together provide a loop of the TC Energy Mainline between  
12 Parkway and the TC Energy Maple Compressor Station located near the  
13 intersection of Kirby Road and Weston Road. TC Energy contracts for  
14 approximately 60% of the capacity on the GTA Line. The remainder of the  
15 capacity is used to supply natural gas to the EGD rate zone (in Toronto).

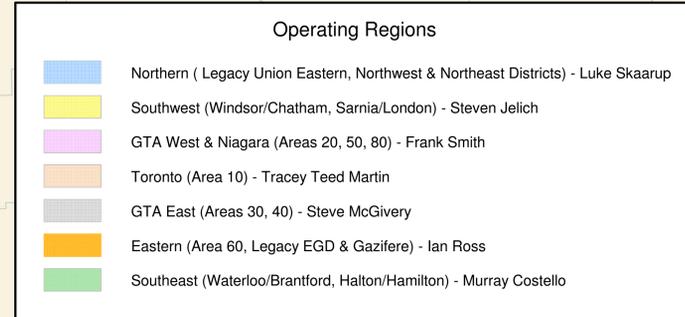
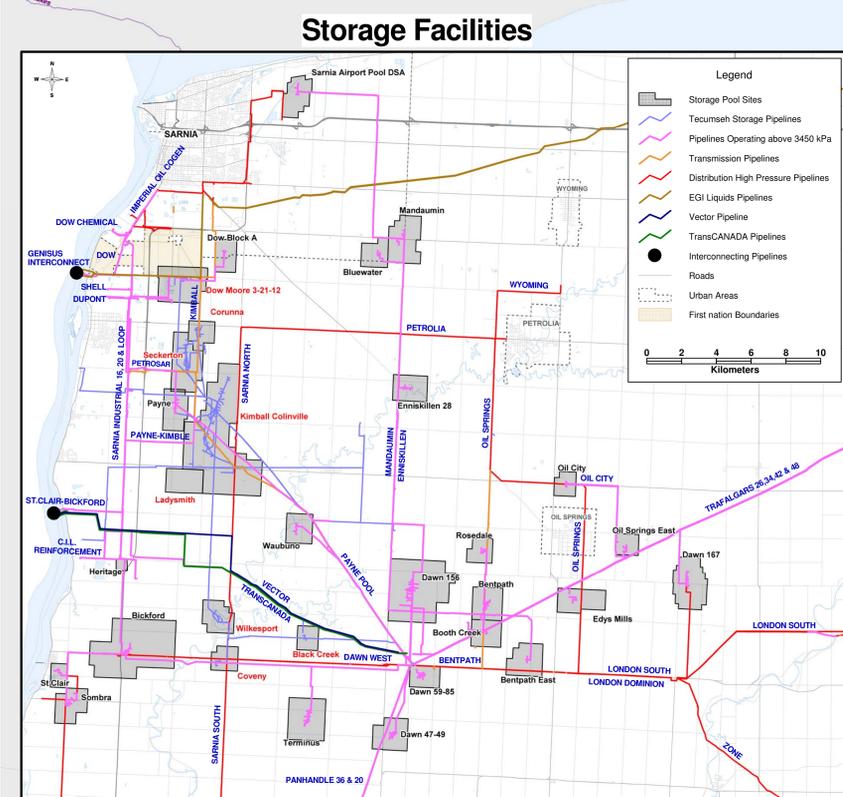
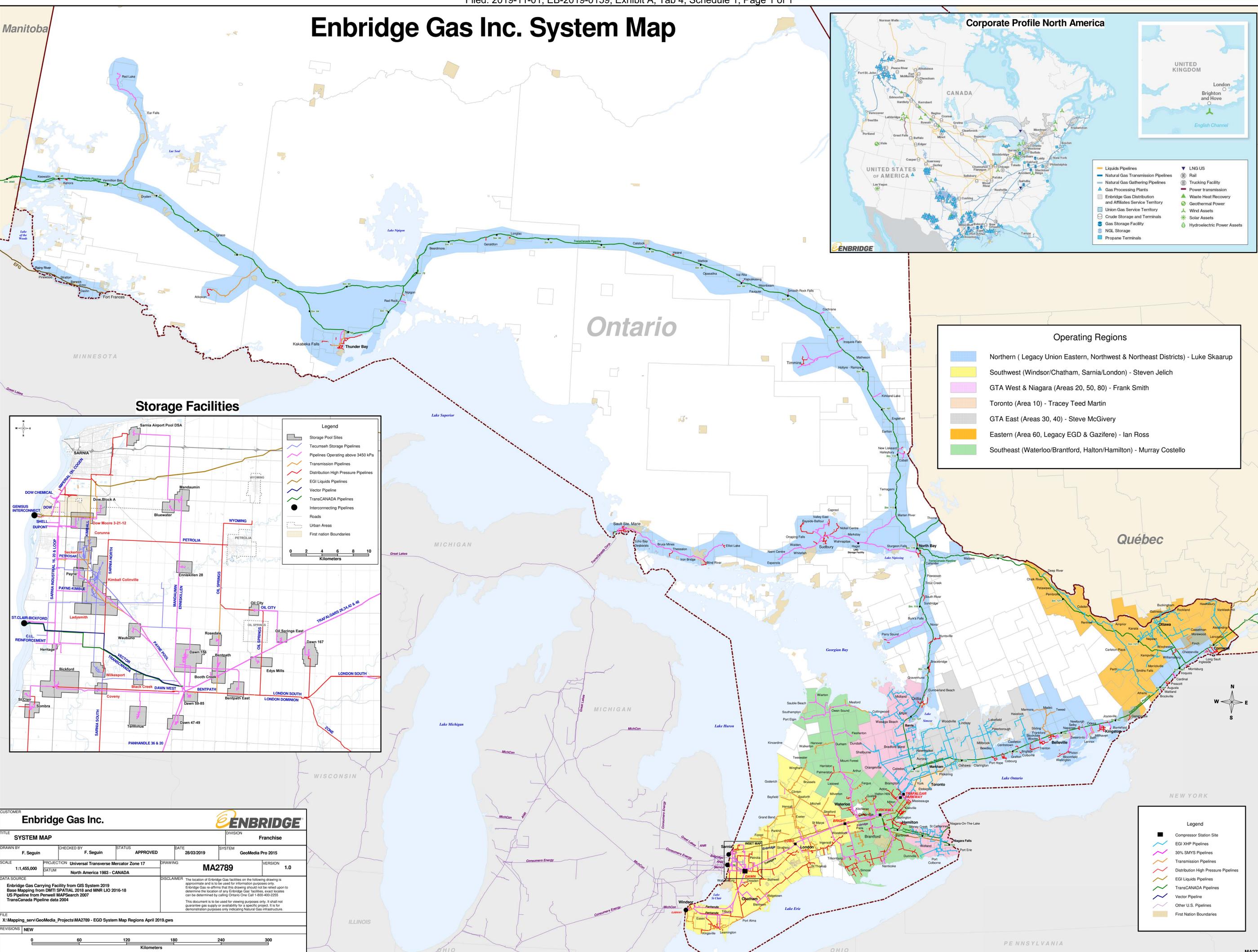
16  
17 Most Union South rate zone customers located east of the Dawn Hub and a significant  
18 segment of EGD rate zone customers located in the city of Toronto are served directly  
19 from the Dawn Parkway System via Enbridge Gas’s distribution and transmission  
20 pipelines. Some Enbridge Gas customers are served by TC Energy’s Niagara Export  
21 Line and Domestic Line, including those located in the TC Energy Union CDA and

1 Union ECDA (city of Hamilton, Haldimand County, Norfolk County, and part of  
2 Burlington-Oakville) and a portion in the TC Energy Enbridge CDA (the Niagara  
3 Peninsula and a portion of Toronto area near Parkway). Enbridge Gas uses the Dawn  
4 Parkway System and TC Energy's Mainline to ship natural gas from the Dawn Hub to  
5 the Union North rate zone and the EGD rate zone (Central region and Eastern region).

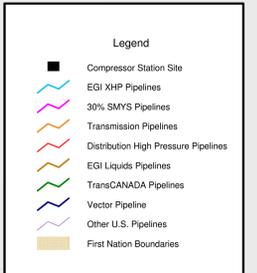
6  
7 Enbridge Gas provides transportation services on the Dawn Parkway System to ex-  
8 franchise customers, including TC Energy, Énergir (formerly Gaz Métro), St. Lawrence  
9 Gas and other U.S. Northeast natural gas utilities. Enbridge Gas is accountable to its  
10 in-franchise customers and its ex-franchise firm transportation customers for the safe  
11 and reliable delivery of natural gas.

12  
13 The Dawn Parkway System is an integral component of the broader natural gas delivery  
14 system connecting most of North America's major supply basins to the largest region of  
15 underground natural gas storage in North America, to the liquid Dawn Hub and to  
16 Ontario, Québec, the Maritimes and U.S. Northeast consuming markets including  
17 residents, businesses and industry.

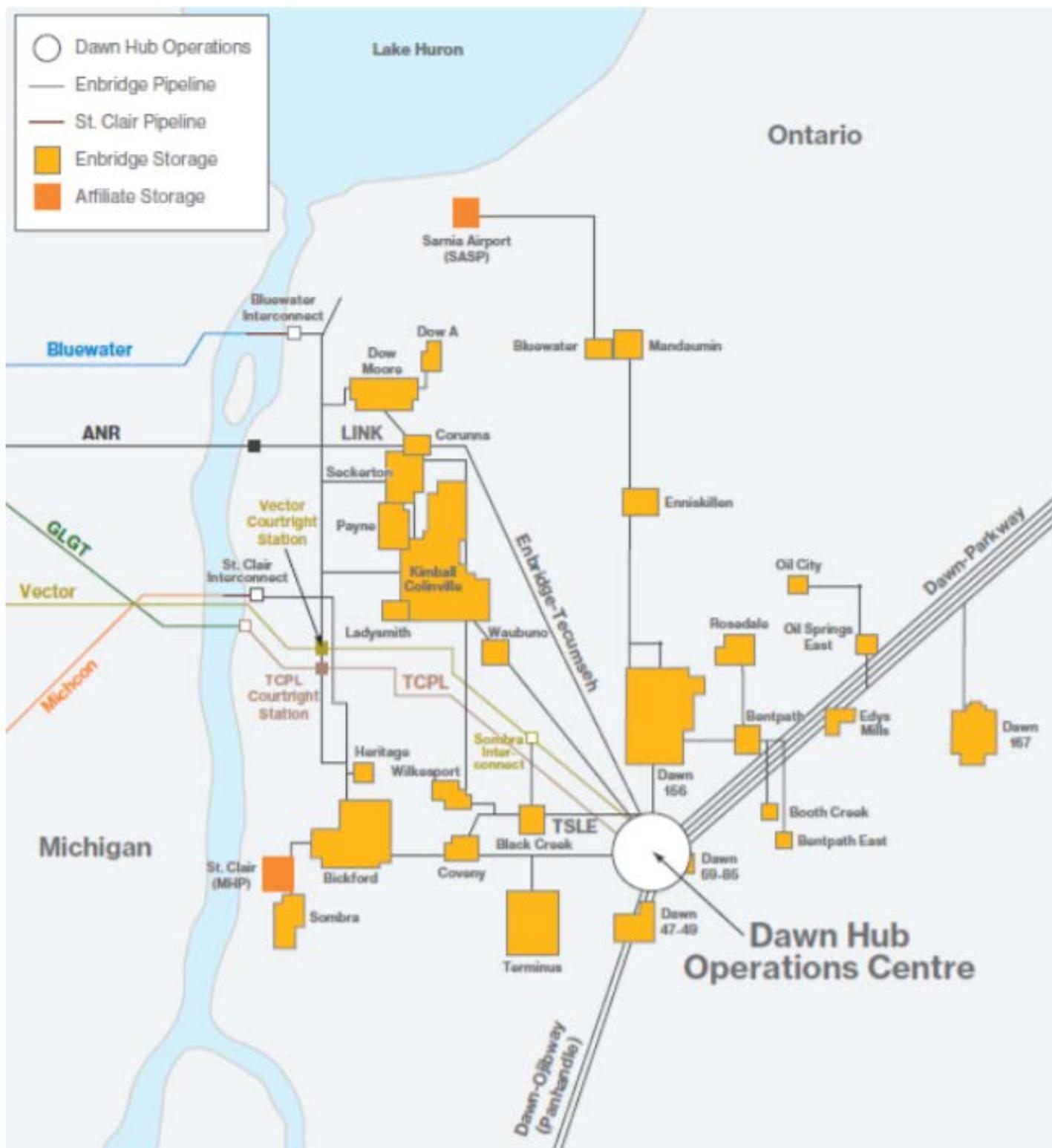
# Enbridge Gas Inc. System Map



CUSTOMER <b>Enbridge Gas Inc.</b>			
TITLE <b>SYSTEM MAP</b>		DIVISION Franchise	
DRAWN BY F. Seguin	CHECKED BY F. Seguin	STATUS APPROVED	DATE 28/03/2019
SCALE 1:1,455,000	PROJECTION Universal Transverse Mercator Zone 17	DRAWING <b>MA2789</b>	VERSION 1.0
DATA SOURCE Enbridge Gas Carrying Facility from GIS System 2019 Base Mapping from DMTI SPATIAL 2018 and MNR LIO 2016-18 US Pipeline from Penwell MAPSearch 2007 TransCanada Pipeline data 2004		DISCLAIMER The location of Enbridge Gas facilities on the following drawing is approximate and is to be used for information purposes only. Enbridge Gas re-affirms that this drawing should not be relied upon to determine the location of any Enbridge Gas facilities, exact locations can be determined by calling Ontario One Call 1-800-400-2255 This document is to be used for viewing purposes only. It shall not guarantee gas supply or availability for a specific project. It is for demonstration purposes only indicating Natural Gas infrastructure.	
FILE X:\Mapping_serv\GeoMedia_Projects\MA2789 - EGD System Map Regions April 2019.gws			
REVISIONS NEW			
0 60 120 180 240 300 Kilometers			



### Enbridge Gas Inc. Dawn Hub and Storage Facilities



# Enbridge Gas Inc. Dawn Parkway System

Filed: 2019-11-01

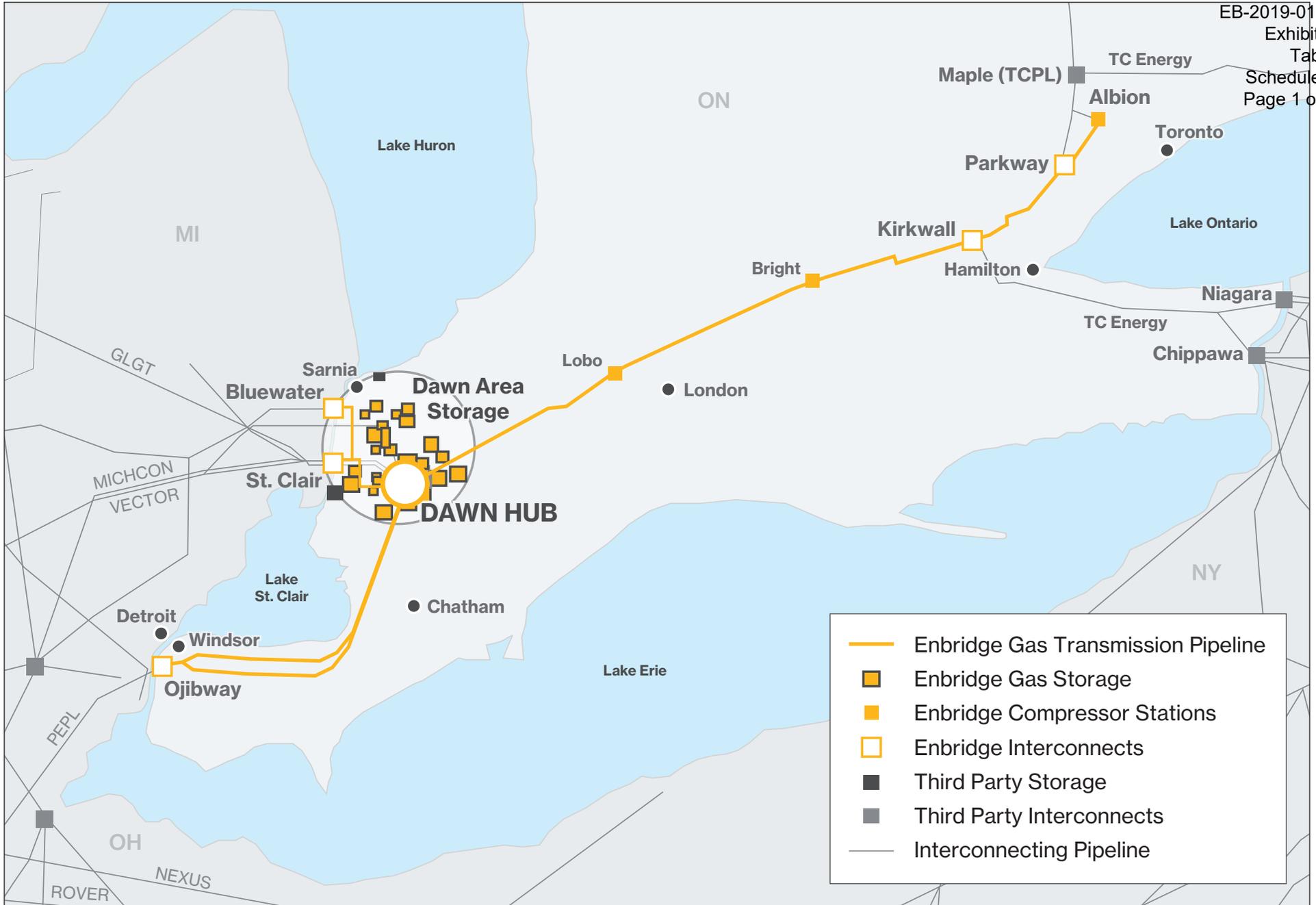
EB-2019-0159

Exhibit A

Tab 4

Schedule 3

Page 1 of 1



1 **MARKET DYNAMICS**

2 The purpose of this section of evidence is to discuss current natural gas transportation  
3 and supply dynamics in North America and the benefits of the Enbridge Gas Dawn  
4 Parkway System.

5  
6 This Tab of evidence is organized as follows:

- 7 1. 2019 ICF International Report
- 8 2. Natural Gas Supply Dynamics
- 9 3. The Dawn Hub
- 10 4. The Dawn Parkway System

11  
12 North America continues to experience changes in natural gas markets. Namely,  
13 demand for natural gas to serve traditional and emerging (LNG export and natural gas-  
14 fired electricity generation) markets is expected to support increased production from  
15 lower cost unconventional (e.g., shale gas formations) sources of supply. Demand for  
16 lower cost unconventional production in Ontario, Québec, the Maritimes and the U.S.  
17 Northeast is driving the need to develop new infrastructure to deliver this supply to  
18 markets. New infrastructure, such as NEXUS, Rover and Vector, has been built  
19 upstream of the Dawn Parkway System to accommodate this demand for lower cost  
20 production, and the proposed Project is required to deliver this incremental supply to  
21 markets in Ontario and beyond. Enbridge Gas has observed significant operational  
22 changes in the flow of natural gas volumes on its system consistent with these broader,

1 long term changes in North American supply and demand, supporting the need for the  
2 proposed Project.

3

#### 4 **1. 2019 ICF International Report**

5 In 2019 ICF completed the 2019 ICF Report which provides analyses of North American  
6 natural gas supply and transportation dynamics, including evaluation of North American  
7 natural gas supply and consuming markets, current and future gas supply options, the  
8 impact of proposed pipeline projects and an assessment of the market, regulatory risks  
9 and opportunities for the Dawn Parkway System (see Exhibit A, Tab 5, Attachment 1).

10

11 The 2019 ICF Report concludes, that:

12 ...the major natural gas market changes currently underway provide incentives  
13 over the long term for utilities and other large gas customers in Ontario and  
14 Québec, and the U.S. Northeast to continue to hold pipeline capacity in Ontario  
15 and to increase reliance on supplies from the Marcellus/Utica shale. The Dawn  
16 Parkway System provides economic access to these supplies at a liquid trading  
17 hub with significant pipeline and storage infrastructure to ensure operational  
18 flexibility...<sup>1</sup>

19

20 The new facilities proposed by Enbridge respond to market needs and should  
21 be expected to remain fully contracted. The changes in natural gas markets are  
22 shifting the economics of natural gas supply for Ontario consumers, and for  
23 consumers that rely on Ontario pipeline capacity. Natural gas prices at  
24 Marcellus and Utica supply centers are expected to continue to decline relative  
25 to natural gas prices in the WCSB and remain well-below the U.S. Gulf Coast,  
26 and other North American supply centers, creating significant economic  
27 incentives to develop the infrastructure needed to access this source of supply.<sup>2</sup>

28

---

<sup>1</sup> Exhibit A, Tab 5, Attachment 1, p. 42.

<sup>2</sup> Exhibit A, Tab 5, Attachment 1, p. 43.

1 **2. Natural Gas Supply Dynamics**

2 North American natural gas markets are continuing to experience changes as:  
3 (i) production of natural gas supply from shale gas formations in Appalachia, the Gulf  
4 region and Western Canada are expected to continue to grow; (ii) natural gas-fired  
5 generation and renewable generation continue to replace North American coal-fired  
6 generation; and (iii) liquefied natural gas (“LNG”) exports drive continued market growth.

7  
8 Natural gas traditionally flowed west to east and south to north on North America’s  
9 pipeline grid. As shale plays further develop and market demand for natural gas across  
10 North America continues to grow, the flow of natural gas on the Canadian and U.S.  
11 pipeline grids continues to change; existing pipelines have reversed flows while new  
12 pipelines are also being built to allow gas to flow east to west and north to south.

13

14 **North American Natural Gas Production Growth**

15 For the past several years there has been rapid growth in the production of shale gas in  
16 the Marcellus/Utica, Permian and Western Canadian basins which have changed  
17 natural gas flow patterns and impacted natural gas prices.

18

19 The Appalachian Basin, specifically the Marcellus and Utica shale gas formations, has  
20 experienced the most prolific natural gas production growth in North America. This  
21 abundant natural gas supply is located within the Great Lakes region in close proximity  
22 to Ontario, to the Dawn Parkway System and to other eastern North American

1 consuming markets. ICF concludes, that “*Since 2010, natural gas production from the*  
2 *Marcellus and Utica plays in the Appalachian Basin have increased from 2.4 PJ/d in*  
3 *2010 to 29.3 PJ/d in 2018.*”<sup>3</sup> Marcellus and Utica shale gas formations have become  
4 significant contributors to the forecast for increased U.S. natural gas production. ICF  
5 projects, that “*... production from the Marcellus and Utica plays in the Appalachian*  
6 *Basin to reach 33.4 petajoules per day (PJ/d) by 2020, 42.3 PJ/d by 2030, and 45.3*  
7 *PJ/d by 2040*”.<sup>4</sup> Consistent growth in production out of the Marcellus and Utica basins is  
8 expected to continue into 2040; the most likely markets for this gas supply include the  
9 U.S. Southeast, U.S. Midwest, the U.S. Northeast (through Ontario) and Ontario.

10  
11 Similarly, “*The WCSB has also become a prolific shale gas play, with shale gas*  
12 *production increasing from 1.3 PJ/d in 2010 to 7.3 PJ/d in 2018.*”<sup>5</sup> Western Canadian  
13 Sedimentary Basin (“WCSB”) production is also expected to continue to grow, however,  
14 LNG export capacity expected to be constructed on the Canadian west coast will  
15 compete for gas supplies from western Canada. ICF projects WCSB production to  
16 experience more rapid growth in the future, growing from 17.7 PJ/d in 2018 to 26.0 PJ/d  
17 in 2040.<sup>6</sup>

3 Exhibit A, Tab 5, Attachment 1, p. 6. ICF converted from cubic feet of natural gas to joules using the NEB’s standard conversion of 947.8171 cubic feet per gigajoule - <https://apps.neb-one.gc.ca/Conversion/conversion-tables.aspx?GoCTemplateCulture=en-CA>

<sup>4</sup> Exhibit A, Tab 5, Attachment 1, p. 7.

<sup>5</sup> Exhibit A, Tab 5, Attachment 1, p. 7.

<sup>6</sup> Exhibit A, Tab 5, Attachment 1, p. 19.

1 **North American Natural Gas Demand Growth**

2 According to its 2019 ICF Report, ICF expects “*North American natural gas demand to*  
3 *increase by about 40.6 PJ/d between 2018 and 2040. The growth in demand includes*  
4 *an increase of 19.9 PJ/d in North American consumption, and an increase of 20.7 PJ/d*  
5 *in LNG exports and pipeline exports to Mexico.*”<sup>7</sup>

6  
7 The nature of North American natural gas demand growth, being driven in-part (50%) by  
8 LNG and pipeline exports, has a direct impact on the supply of gas available for Ontario  
9 and U.S. North East markets. As stated by ICF,

10 Overall, the growth in natural gas demand for oil sands production and LNG  
11 exports could significantly reduce natural gas available for export from the WCSB  
12 to Ontario and other markets. Similarly, higher than expected LNG exports from  
13 the U.S. Gulf Coast could reduce Marcellus/Utica gas available for export to  
14 Ontario.<sup>8</sup>

15  
16 To meet the growth in natural gas demand,

17 ICF projects U.S. and Canadian gas production to grow from about 106 PJ/d in  
18 2018 to over 147 PJ/d by 2040, an average annual growth rate of 1.6 percent  
19 per year. This growth will continue to come from unconventional production,  
20 while conventional onshore production is expected to decline.<sup>9</sup>

21  
22 ICF also projects that,

23 annual production from U.S. and Canadian shale formations is expected to grow  
24 from about 68.1 PJ/d (approximately two thirds of total production) in 2018 to  
25 nearly 125.3 PJ/d (approximately 85% of total production) by 2040.<sup>10</sup>

26

---

<sup>7</sup> Exhibit A, Tab 5, Attachment 1, p. 10.

<sup>8</sup> Exhibit A, Tab 5, Attachment 1, p. 12.

<sup>9</sup> Exhibit A, Tab 5, Attachment 1, p. 13.

<sup>10</sup> Exhibit A, Tab 5, Attachment 1, p. 13.

1 In total, natural gas production in Canada is increasing as gradually higher prices and  
2 positive developments associated with proposed LNG facilities encourage production.  
3 Shale gas development in western Canada is predicted to be directly correlated with the  
4 development of LNG export terminals on the Pacific coast and elsewhere within North  
5 America. North American LNG exports in 2019 will have one of the largest year-on-  
6 year increases in LNG export capacity, with 3.3 PJ/d of capacity additions expected  
7 between December 2018 and December 2019.

8  
9 ICF projects, that

10 LNG exports are expected to provide additional markets for both Canadian  
11 and U.S. natural gas production...Based on our assessment of global LNG  
12 demand and supply, ICF is projecting the completion of ten North American  
13 export facilities between 2016 and 2031 (two in Canada, six on the U.S. Gulf  
14 Coast, and two on the U.S. East Coast), exporting a total of 20 PJ/d by  
15 2033.<sup>11</sup>  
16

17 The expected increase in natural gas demand from west coast LNG facilities will result  
18 in an increase in natural gas prices in the WCSB which will reduce the competitiveness  
19 of WCSB gas to serve other markets including the U.S. Midwest and U.S. Northeast  
20 resulting in lower exports to these markets.

21  
22 While Pacific LNG export facilities will contribute to overall North American market  
23 development and increased WCSB production, many other North American markets will

---

<sup>11</sup> Exhibit A, Tab 5, Attachment 1, p. 20.

1 compete for new WCSB shale gas production, including: (i) traditional western  
2 Canadian; (ii) U.S. Pacific; (iii) U.S. Mid-West; and (iii) eastern North American markets.

3

### 4 **3. The Dawn Hub**

5 In 2018, natural gas production from the Utica and Marcellus natural gas shale  
6 formations began to enter Canada at the Dawn Hub through the Rover and NEXUS  
7 pipelines (via Vector and other Ontario-Michigan interconnects), displacing volumes of  
8 natural gas from Chicago previously delivered to the Dawn Hub via Vector.

9

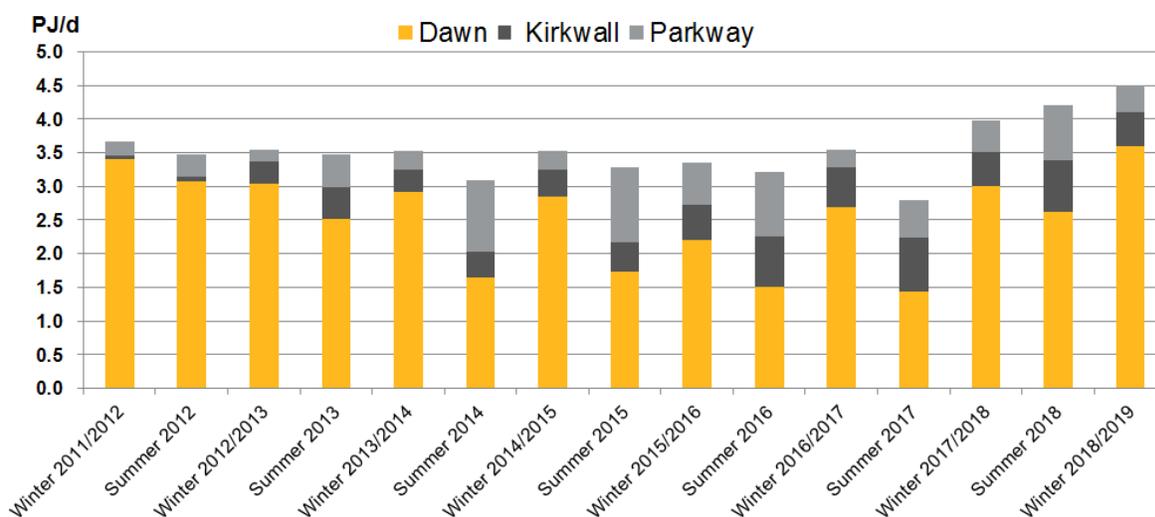
10 The Dawn Hub is one of the most physically traded, liquid hubs in North America and is  
11 the most physically traded natural gas hub in the Great Lakes region. The liquidity of the  
12 Dawn Hub is the result of the combination of:

- 13 • access to abundant underground storage;
- 14 • many buyers and sellers of natural gas;
- 15 • price transparency;
- 16 • interconnections with high capacity upstream transmission pipelines;
- 17 • access to diverse supply of natural gas from most major supply basins across  
18 North America; and
- 19 • Dawn Parkway System take-away capacity to growth markets and  
20 interconnections with high capacity downstream transmission pipelines.

21 Figure 5-1 below shows continued growth of average daily supply arriving at Dawn  
22 directly and indirectly (via Kirkwall/Parkway and the Dawn Parkway System) in the

1 summer and winter.<sup>12</sup> Further, Figure 5-1 shows that, while receipts of supply arriving  
 2 at Parkway and Kirkwall in recent years have remained relatively constant, receipts of  
 3 supply arriving at Dawn have increased significantly as a result of changing flows of  
 4 natural gas supply in and around the Great Lakes region.

5 **Figure 5-1**  
 6 **Increased Supply to Dawn**



7  
 8 The Dawn Hub provides value to natural gas consumers in Ontario, eastern Canada  
 9 and the U.S. Northeast by attracting natural gas supply to Ontario, providing natural gas  
 10 consumers and shippers with unique and reliable gas supply choice and competitive  
 11 natural gas commodity prices.

12  
 13 **4. The Dawn Parkway System**

14 Enbridge Gas has seen fundamental changes in natural gas transportation contracting  
 15 and flow on the Dawn Parkway System because of declining utilization of upstream

<sup>12</sup> Based on gross scheduled deliveries to Enbridge Gas’s system from third-party pipelines, not including any supply from Ontario storage.

1 long-haul paths. The impacts of these changes on the Dawn Parkway System include:

- 2
- 3 i) a significant decrease in contracting and flow on the Dawn to Kirkwall path;
  - 4 ii) a significant increase in contracting and flow on the Dawn to Parkway path which
  - 5 required Dawn Parkway System expansions from 2015 through 2017; and
  - 6 iii) continued contracting of surplus capacity.
- 7

8 **i) Dawn to Kirkwall Transportation**

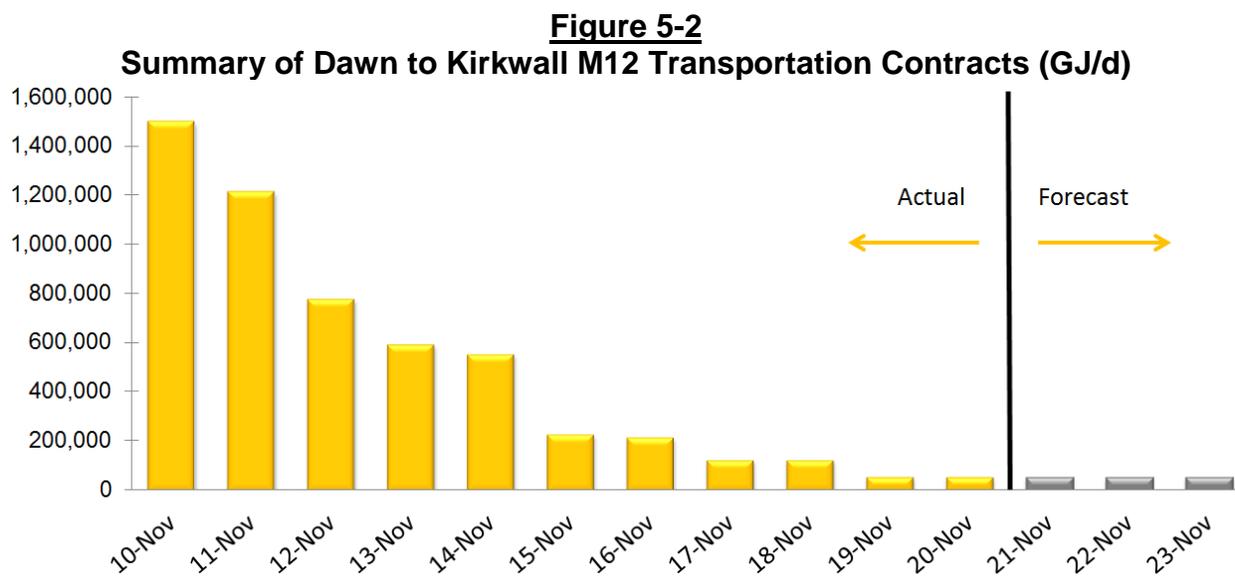
9 Firm Dawn to Kirkwall M12 transportation contracts have steadily declined since 2010  
10 as U.S. Northeast shippers gained access to more economic supply and transmission  
11 paths closer to their respective consuming markets. In 2010, shippers held  
12 approximately 1.5 PJ/d of firm Dawn to Kirkwall transportation contracts on the Dawn  
13 Parkway System as shown at Figure 5-2. As contract terms have expired, and through  
14 reverse open seasons, shippers have turned back approximately 1.38 PJ/d of firm  
15 Dawn to Kirkwall transportation capacity.<sup>13</sup>

16

---

<sup>13</sup> Effective January 1, 2019, following the amalgamation of EGD and Union to become Enbridge Gas, 67,929 GJ/d of firm Dawn to Kirkwall transportation contracts formerly held by EGD became Enbridge Gas capacity to serve in-franchise customers.

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Enbridge Gas forecasts that 49,500 GJ/d of firm Dawn to Kirkwall transportation contracts will extend past November 1, 2019 to serve the Thorold Power Generation station in Niagara. Since there is no further Dawn to Kirkwall turnback forecast, there is no resulting Parkway Delivery Obligation (“PDO”) reduction anticipated (see Exhibit A, Tab 7 for additional detail on PDO).<sup>14</sup>

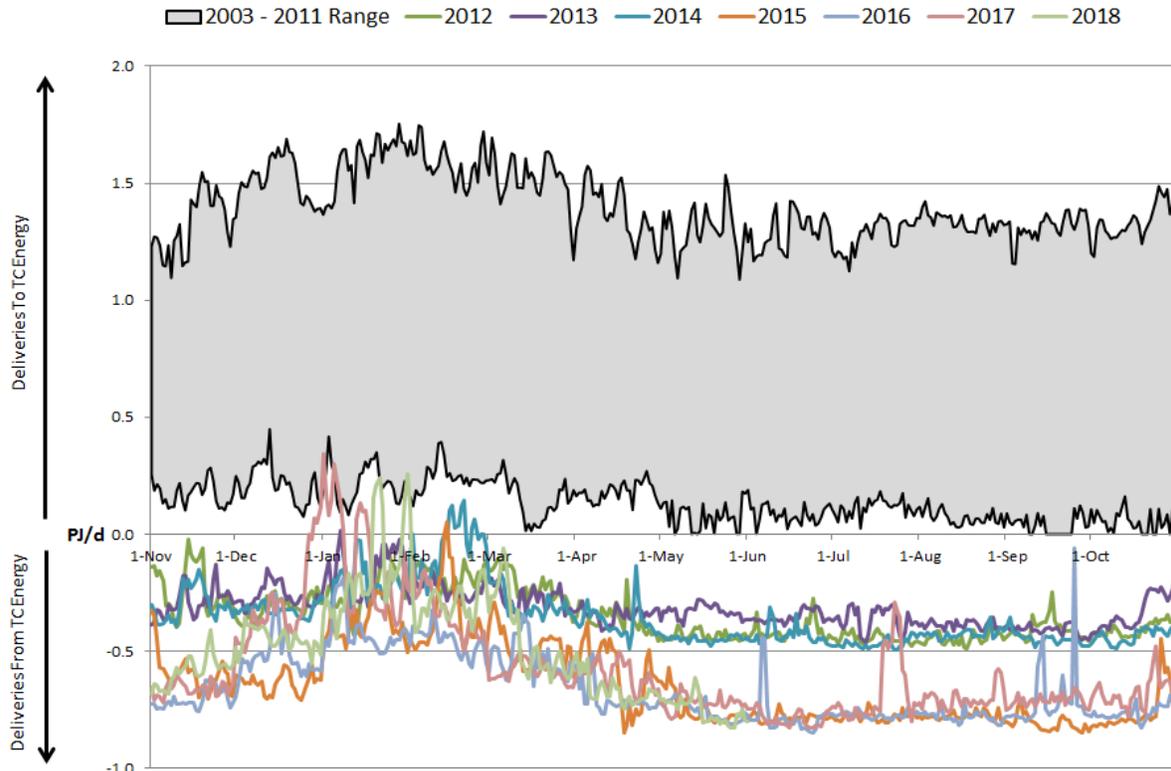
**ii) Receipts at Kirkwall**

With the development of production from the Appalachian Basin and resulting regional flow changes, facility modifications were made to make Kirkwall a receipt point on the Dawn Parkway System in 2012. This has allowed natural gas imported from New York at the Niagara and Chippawa import/export points to be transported on TC Energy’s system to the Dawn Parkway System at Kirkwall as detailed at Figure 5-3.

<sup>14</sup> EB-2013-0365, Decision, June 16, 2014, Appendix B, p. 4 of 7, iii.

1  
2

**Figure 5-3**  
**Summary of Daily Kirkwall Receipts**



3

4 **iii) Dawn to Parkway Transportation**

5 From 2009 to 2015 the impact of Dawn to Kirkwall transportation capacity turnback was  
6 mitigated by selling capacity with Parkway deliveries to meet increased demand for  
7 transportation on the Dawn to Parkway path. Since that time, Enbridge Gas (formerly  
8 Union), has continued to receive requests for Dawn to Parkway transportation capacity  
9 from ex-franchise customers. Similarly, Enbridge Gas has continued to require  
10 incremental Dawn Parkway System capacity to serve design day demand growth within  
11 its own service territory. Consequently, firm easterly Dawn Parkway System  
12 transportation demand with deliveries at Parkway has steadily increased as shippers  
13 adjust their natural gas supply portfolios seeking diversity and security of supply as well

1 as cost-competitive supply through further access to the Dawn Hub. Access to  
2 Appalachian Basin supply allows businesses and industry in Ontario and Québec to  
3 compete with business and industry in neighboring provinces and states that have easy  
4 access to this prolific supply.

5  
6 In winter 2018/2019, Enbridge Gas (formerly Union) had 7.7 PJ/d of firm Dawn to  
7 Parkway transportation demands (in-franchise and ex-franchise). Enbridge Gas  
8 secured new firm Dawn Parkway System transportation contracts for 0.151 PJ/d (ex-  
9 franchise) with Parkway deliveries beginning winter 2019/2020 and winter 2020/2021,  
10 respectively. Through the Open Season, Enbridge Gas awarded 0.185 PJ/d of Dawn  
11 Parkway capacity as described at Exhibit A, Tab 6, Table 6-2, and at Exhibit A, Tab 7,  
12 Table 7-1. Enbridge Gas also received turnback of Dawn Parkway System capacity of  
13 approximately 0.1 PJ/d for this same period as described at Exhibit A, Tab 7, Table 7-1.  
14 Effective November 1, 2021, considering incremental contracted demand and turnback,  
15 Enbridge Gas will have 5.9 PJ/d of firm contracted and system Dawn Parkway  
16 transportation demands with deliveries at Parkway.<sup>15</sup>

17  
18 ICF concludes and Enbridge Gas affirms, that continued expansion of pipeline capacity  
19 in Ontario is critical to allow markets in Ontario, Québec, the Maritimes and the U.S.  
20 Northeast to diversify gas supply portfolios and to access cost effective supply through

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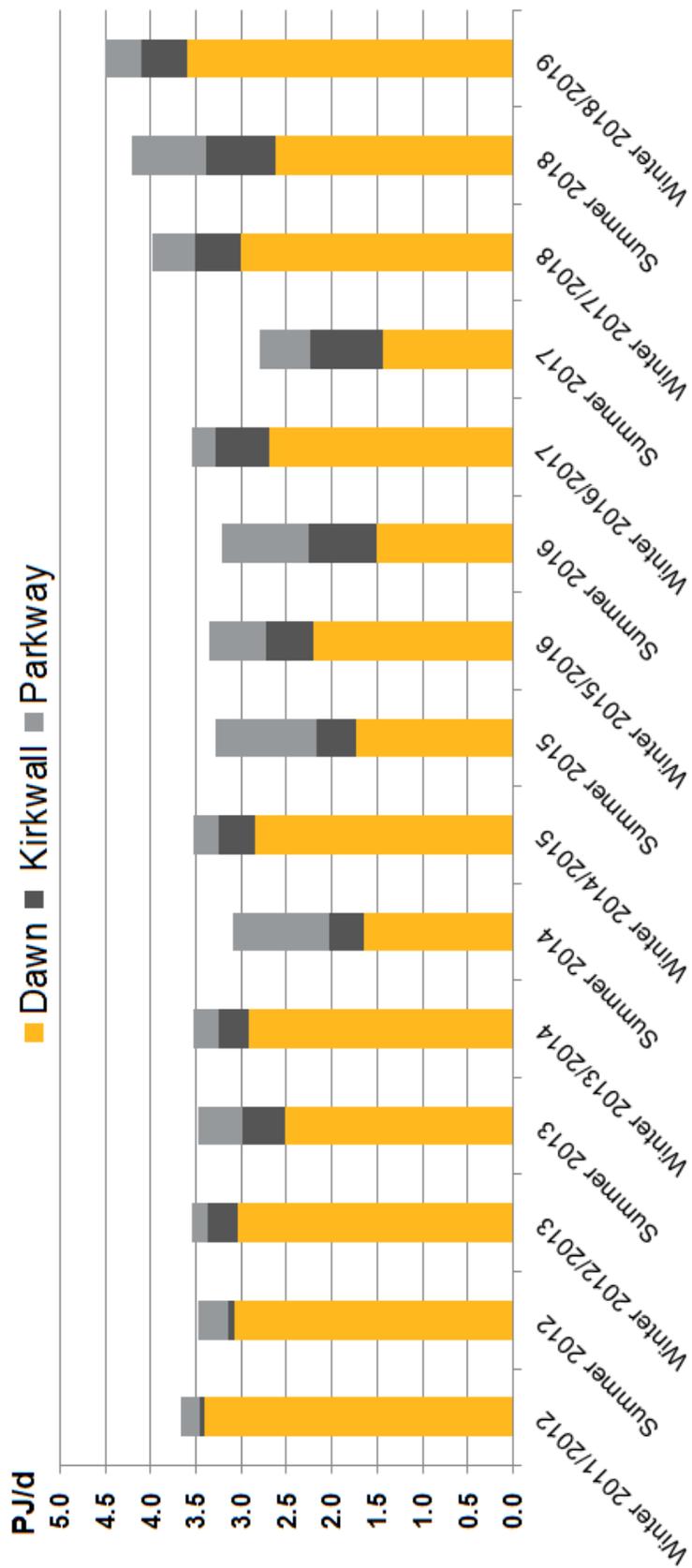
<sup>15</sup> The increase in Dawn Parkway System demand with Parkway deliveries from the 2015 to 2017 new capacity open seasons is offset slightly by turn back, system capacity adjustments and management of the Parkway shortfall. Deliveries at Parkway include deliveries to TC Energy and to the EGD rate zone.

- 1 increased access to natural gas from the Dawn Hub and increased access to cost
- 2 competitive natural gas from the WCSB and the Appalachian Basin.<sup>16</sup>

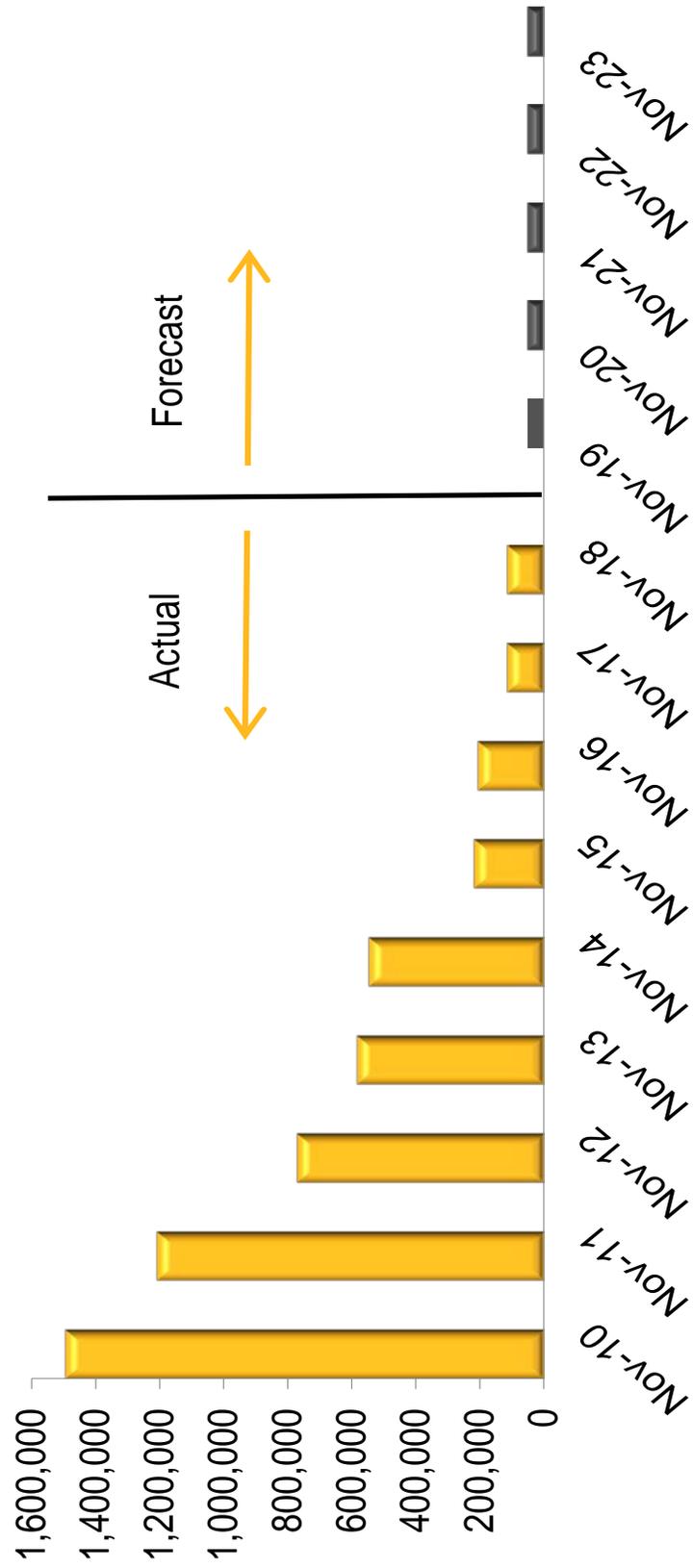
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<sup>16</sup> Exhibit A, Tab 5, Attachment 1, pp. 42-43.

Increased Supply to Dawn

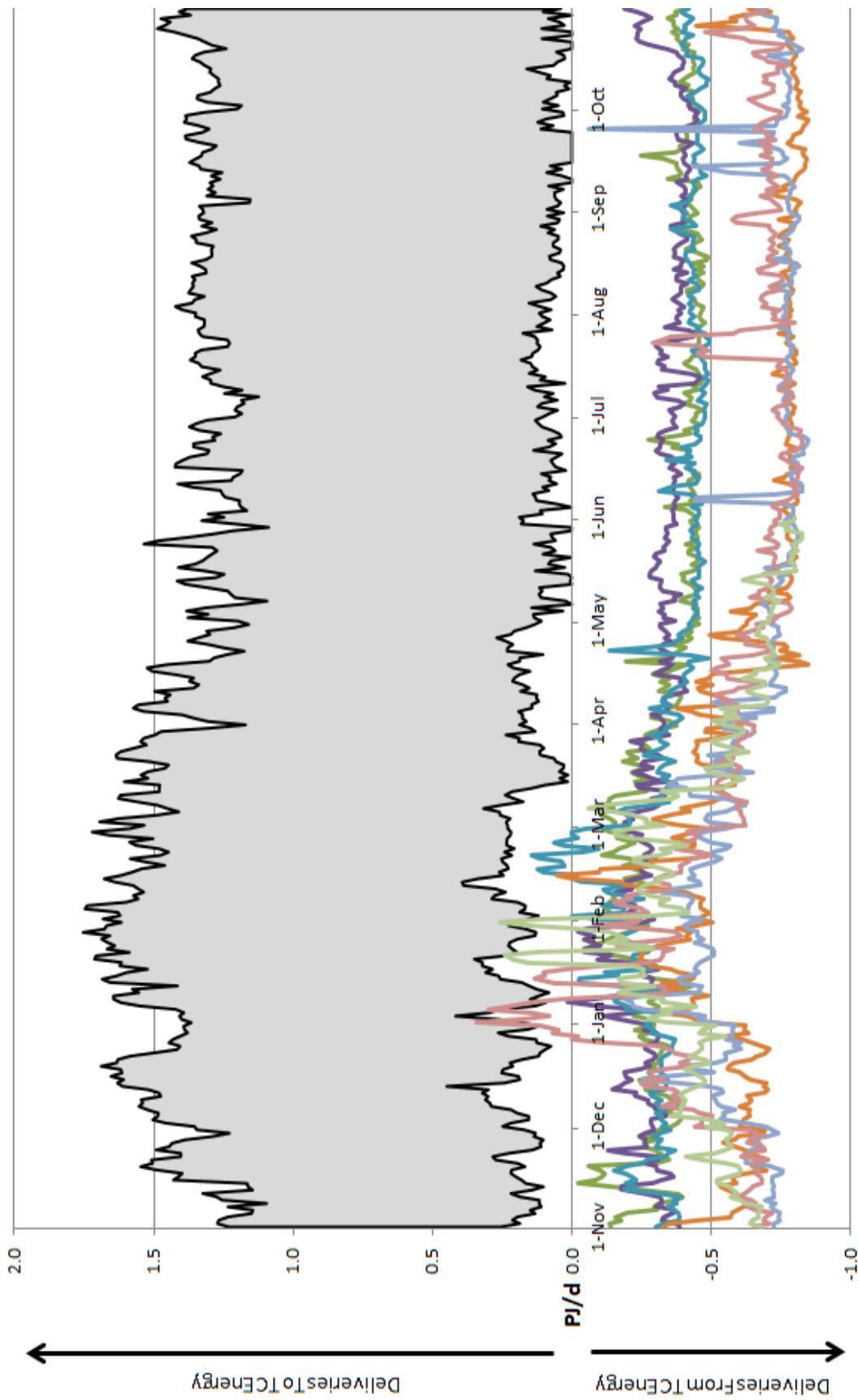


**Summary of Dawn to Kirkwall M12 Transportation Contracts (GJ/d)**



### Summary of Daily Kirkwall Receipts

Legend: 2003 - 2011 Range (Grey background), 2012 (Green), 2013 (Purple), 2014 (Blue), 2015 (Orange), 2016 (Light Blue), 2017 (Red), 2018 (Dark Green)





# Impact of Changing Supply Dynamics on the Ontario Natural Gas Market

Filed: 2019-11-01  
EB-2019-0159  
Exhibit A  
Tab 5  
Attachment 1  
Page 1 of 43

July 2019

Submitted to:  
Enbridge Gas Inc.



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## Table of Contents

I.	Introduction .....	1
1.1	Recent Major Market Developments .....	1
1.2	Natural Gas Market Outlook.....	2
1.2.1	Production Outlook .....	2
1.2.2	Increase in LNG Exports .....	3
1.2.3	TC Energy Long-term Fixed Price Services and Demand Growth in Ontario and the U.S. Northeast .....	3
1.3	Analytical Framework.....	3
1.4	Summary of Conclusions .....	4
2	North American Natural Gas Market Outlook .....	5
2.1	North American Demand .....	5
2.1.1	Western Canadian Natural Gas Demand .....	7
2.2	North American Natural Gas Supply Outlook.....	8
2.2.1	ICF June 2019 Base Case Supply Outlook .....	8
2.2.2	Appalachia Supply Outlook .....	11
2.2.3	Western Canada Supply Outlook .....	14
2.3	North American LNG Exports.....	15
2.3.1	LNG exports from British Columbia .....	16
2.3.2	East Coast Canadian LNG Projects .....	17
2.4	North American Pipeline Flows and Capacity Requirements.....	18
2.4.1	Pipeline Flows .....	18
2.4.2	Pipeline Capacity .....	19
2.5	Natural Gas Price Outlook .....	20
3	Ontario Natural Gas Market Outlook .....	22
3.1	Ontario Natural Gas Demand.....	22
3.1.1	Ontario Natural Gas Consumption .....	22
3.1.2	Ontario Natural Gas Exports .....	23
3.2	Natural Gas Supply.....	25
3.3	Pipeline Capacity in Ontario .....	26
3.4	Changes in TC Energy’s Role in Serving Ontario Markets.....	27
4	Evaluation of Future Utilization and Contracting of the Dawn to Parkway System.....	29
4.1	Changes in Natural Gas Markets Expected to Increase Demand for Enbridge Dawn to Parkway Assets.....	29
4.1.1	Growth in Marcellus/Utica Production .....	29
4.1.2	Impact of Gas Market Changes on Natural Gas Prices and Basis.....	30
4.2	Capacity Turn-back Risk .....	30

4.2.1	Capacity Turn-back Risk from Ontario and Québec LDCs .....	30
4.2.2	Capacity Turn-back Risk from the U.S. Northeast Utilities.....	31
4.3	Assessing Potential Turn-back Risk.....	33
4.3.1	ICF June 2019 Base Case Scenario .....	34
4.4	Key Areas of Forecast Uncertainty.....	34
4.4.1	Environmental Policy Risk.....	34
4.4.2	East Coast LNG .....	35
5	Conclusion .....	37

## Figures

Figure 1 U.S. and Canadian Gas Consumption by Sector and Exports.....	5
Figure 2 Western Canadian Gas Consumption by Sector .....	8
Figure 3 Projected U.S. and Canadian Gas Supplies .....	9
Figure 4 Projected U.S. and Canadian Shale Gas Production.....	10
Figure 5 U.S. Refiner Acquisition Cost of Crude Oil Price Forecast.....	10
Figure 6 Appalachia Monthly Dry Gas Production, PJ/d.....	12
Figure 7 Appalachia Monthly Well Completions .....	12
Figure 8 Appalachia Annual Well Completions.....	13
Figure 9 Appalachia Annual Average Dry Gas Production, PJ/d .....	13
Figure 10 Western Canada Annual Average Dry Gas Production, PJ/d .....	14
Figure 11 Projected North American LNG Exports .....	16
Figure 12 TC Energy Pipeline Flows East into Manitoba versus Canadian LNG Exports .....	17
Figure 13 Historical Flows Into Michigan .....	19
Figure 14 Historical Flows Out of Michigan .....	19
Figure 15 GMM Average Annual Prices for Selected Markets.....	21
Figure 16 Ontario Natural Gas Consumption by End Use .....	23
Figure 17 Historical and Projected Ontario Natural Gas Demand.....	24
Figure 18 TC Energy Daily Flows East of the Ontario Triangle.....	24
Figure 19 Historical and Projected Ontario Natural Gas Supply Sources .....	25
Figure 20 Daily Gas Prices (1/1/2013 - 6/10/2019).....	26
Figure 21 WCSB Exports by Route and WCSB Production.....	28
Figure 22 New England LDCs Demand Growth Forecast .....	31
Figure 23 2018 Ontario and Dawn Gas Flows (PJ/d) .....	33

## I. Introduction

ICF was engaged by Enbridge Gas Inc. (“Enbridge Gas”) to prepare a report that examines the rapidly changing dynamics of North American natural gas markets and the implications of these changes on consumers and businesses in Ontario and Québec. This report considers the impact of location shifts of North American natural gas demand and supply growth on Ontario’s natural gas infrastructure and on the future utilization of the Dawn Parkway System. Specifically, this report focuses on Ontario’s reliance on gas supplies from western Canada, and gas supplies originating from unconventional shale formations in the eastern half of the United States.

Enbridge Gas expanded the Dawn Parkway System between 2015 and 2017 to meet increased demand for access to the Dawn Hub for deliveries north and east of Dawn. Enbridge Gas has recently received further requests for incremental Dawn Parkway System capacity of 185 TJ/d (effective November 2021 and November 2022) through an open season process. This was partially offset by capacity turn-back received that will be effective March 2021. As a result, Enbridge Gas is proposing a facilities expansion on the Dawn Parkway System which will create approximately 84 TJ/d of incremental capacity between Dawn and Parkway for November 2021. The majority of the incremental capacity requests will meet Enbridge Gas in-franchise demand growth with a smaller portion of the incremental capacity requests received from U.S. Northeast utilities.

This report also provides an assessment of the future utilization of the pipeline capacity on the Dawn Parkway System expansion proposed by Enbridge Gas for November 1, 2021 service.

### 1.1 Recent Major Market Developments

During the past decade, there have been several major changes in ICF’s natural gas market outlook that impact Ontario and other eastern Canadian markets, including rapid growth of gas production in the Marcellus/Utica, the Permian Basin, western Canada, and other areas. These changes have resulted in a significant shift in North American natural gas flows and natural gas prices.

- 1) Since 2010, natural gas production from the Marcellus and Utica plays in the Appalachian Basin have increased from 2.4 PJ/d in 2010 to 29.3 PJ/d<sup>1</sup> in 2018. The growth in Marcellus/Utica production has changed natural gas transportation patterns throughout North America, displacing natural gas flows in the US Midwest and Ontario from the Gulf Coast and Mid-Continent, as well as displacing WCSB natural gas in these markets.
- 2) More recently, shale oil production from the Permian Basin in West Texas and New Mexico has led to rapid growth in associated gas production from the basin. Between

<sup>1</sup> ICF converted from cubic feet of natural gas to joules using the NEB’s standard conversion of 947.8171 cubic feet per gigajoule - <https://apps.neb-one.gc.ca/Conversion/conversion-tables.aspx?GoCTemplateCulture=en-CA>

2010 and 2018, natural gas production from the Permian region increased from 4.0 PJ/d in 2010 to 9.0 PJ/d in 2018. This growth in natural gas production has had a significant impact on natural gas flows to the U.S. Gulf Coast from both West Texas and the Appalachian Basin.

- 3) The WCSB has also become a prolific shale gas play, with shale gas production increasing from 1.3 PJ/d in 2010 to 7.3 PJ/d in 2018. The growth in WCSB shale gas production has offset declines in conventional gas production, resulting in growth in exports from the region.
- 4) The growth in production has stimulated the development of LNG export facilities. ICF is projecting significant liquefied natural gas (LNG) exports from the U.S. Gulf Coast, the U.S. East Coast and the Canadian West Coast, which impacts the price and availability of natural gas supply sources to Ontario, including the Western Canadian Sedimentary Basin (WCSB), the U.S. Mid-Continent, and Gulf Coast regions.
- 5) TC Energy has developed two long-term, fixed price services, from Empress to Dawn and from Empress to North Bay Junction, which have reduced transportation costs and increased projected gas flows from western Canada to Ontario.
- 6) Regional climate change policy and infrastructure development concerns are changing the outlook for new natural gas pipeline infrastructure development, and natural gas demand in the U.S. Northeast and other regions of North America.

Of these major shifts in the market, the most significant shifts for the broader natural gas market have been:

- 1) The continued acceleration of the development of the Marcellus and Utica shale plays in the Appalachian Basin and the development of oil-directed drilling in the Permian Basin. Growth in production from these basins is largely responsible for the increase in the LNG export outlook for the U.S. Gulf Coast and have created additional market pressure for LNG exports from western Canada.
- 2) The acceleration of climate change policy initiatives combined with infrastructure development concerns that are slowing current development of new pipeline infrastructure in the Northeastern U.S. have the potential to impact long term natural gas demand and the development of natural gas markets.

## 1.2 Natural Gas Market Outlook

### 1.2.1 Production Outlook

ICF projects U.S. and Canadian gas production to grow from about 106 PJ/d in 2018 to over 147 PJ/d by 2040, an average annual growth rate of 1.6 percent per year. This growth will continue to come from unconventional production, while conventional onshore production is expected to decline. Most of the production growth is expected to occur in three regions:

- ICF is currently projecting production from the Marcellus and Utica plays in the Appalachian Basin to reach 33.4 petajoules per day (PJ/d) by 2020, 42.3 PJ/d by 2030, and 45.3 PJ/d by 2040.

- ICF is currently projecting production from the Permian region in West Texas and New Mexico to reach 11.8 PJ/d by 2020, 25.1 PJ/d by 2030, and 26.9 PJ/d by 2040.
- ICF is currently projecting total production from the WCSB to reach 18.0 PJ/d by 2020, 23.0 PJ/d by 2030, and 26.0 PJ/d by 2040.

### 1.2.2 Increase in LNG Exports

ICF is currently projecting completion and expansion of ten North American LNG export facilities between 2016 and 2031, which will export a total of 19.1 PJ/d by 2031. Eight of the ten facilities in ICF's forecast have firm investment decisions (FIDs). The "first wave" of North American LNG export facilities completed between 2016 and 2020 will export 8.7 PJ/d of gas by 2021. The "second wave" of North American LNG export facilities, which will include Canada LNG in British Columbia, will start to come online in 2023. This increase in LNG exports is a result of increased availability of North American natural gas, largely due to the growth in Marcellus/Utica, Permian, and WCSB production.

Most of the growth in LNG exports is expected to occur in the U.S. Gulf Coast and the Canadian west coast. The growth in LNG exports increases natural gas demand in the exporting regions, resulting in higher regional natural gas prices, and changing natural gas flow patterns to ensure LNG supply availability. ICF expects this to occur in both the U.S. Gulf Coast and the western Canadian markets.

The increase in the U.S. Gulf Coast LNG exports (and Gulf Coast power generation and industrial demand), is expected to lead to higher Gulf Coast prices relative to prices in the Midwest, reducing the attractiveness of Gulf Coast natural gas supplies to consumers in the U.S. Midwest. The increase in western Canadian LNG exports is expected to lead to higher prices in the WCSB, reducing attractiveness of WCSB natural gas supplies to consumers in Ontario, other eastern Canadian markets and the U.S. Northeast. On the other hand, the continuing growth in supply and resulting lower gas supply costs from the Appalachian Basin will provide incentives for consumers in the Ontario, Québec and U.S. Northeast markets to increasingly source supplies from these plays.

### 1.2.3 TC Energy Long-term Fixed Price Services and Demand Growth in Ontario and the U.S. Northeast

In late 2017, gas flows from western Canada began to be supported by the introduction of TC Energy's Empress to Dawn long term, fixed price (Dawn LTFP) service. In late 2019, the North Bay Junction (NBJ) LTFP service will begin, further bolstering flows from the WCSB to Ontario. After those services expire, it is expected that TC Energy will have to continue to offer similar services on its Mainline in order for WCSB supply to compete with Marcellus/Utica gas supply.

## 1.3 Analytical Framework

For this study, ICF relied on its proprietary Gas Market Model ("GMM") and its June 2019 Base Case (Base Case) outlook to estimate how the Dawn Parkway System expansion will integrate with regional and North American natural gas supply and demand. The GMM simulates the interaction of natural gas supply and demand conditions across the continent, and the impact on gas pipeline flows and regional prices.

The GMM is an internationally recognized modeling and market analysis system for the North American gas market that includes natural gas demand sectors, conventional and unconventional natural gas resources (including western Canadian developments), the impact of production costs, and other developments such as potential LNG exports and Alberta oil sands development.

## 1.4 Summary of Conclusions

Based on our analysis, ICF concludes that the major natural gas market changes currently underway provide incentives over the long term for utilities and other large gas customers in Ontario and Québec, and the U.S. Northeast to continue to hold pipeline capacity in Ontario and to increase reliance on supplies from the Marcellus/Utica shale. The Dawn Parkway System provides economic access to these supplies at a liquid trading hub with significant pipeline and storage infrastructure to ensure operational flexibility.

ICF finds that the proposed capacity expansion on the Dawn Parkway System is supported by market trends and the risk of future capacity turn-back is limited for the following reasons:

- Production out of the Marcellus and Utica shale plays is projected to grow to more than 42 PJ/d by 2030, and 45 PJ/d by 2040. The most likely markets for this gas include the U.S. Southeast, as well as the U.S. Midwest, Ontario, and the U.S. Northeast via Canada. Marcellus and Utica gas is expected to displace natural gas flows from the Gulf Coast into the Midcontinent and Southeast.
  - The lack of new pipeline development into the U.S. Northeast limits growth in direct access to these markets for Marcellus/Utica gas.
  - The growth in Permian associated gas production as well as the Haynesville and Eagle Ford plays limits the potential for Marcellus/Utica gas to serve growth in natural gas load in the Gulf Coast region needed to meet industrial and power generation load growth or LNG export demand in the region.
- Increasing demand, and especially peak demand, in eastern Canada and the U.S. Northeast, coupled with limitations on pipeline development in New York and New England, makes Dawn an important transportation and storage location for Marcellus/Utica gas destined for those markets.
- Total WCSB production is expected to increase slowly over time as growth in shale gas production from the emerging Montney and Horn River shale gas plays offset declining conventional production from the WCSB. However, significant LNG export capacity is expected to be constructed on the British Columbia coast, which, along with oil sands development in Alberta, will be competing for gas supplies from western Canada.
- Climate change policy in the Northeastern US, Ontario and Québec is expected to limit growth in annual natural gas demand. However, the lack of new pipeline development in New York and New England is expected to ensure that existing pipeline capacity will continue to be highly valued and utilized, particularly during peak periods, through 2040.
- Net utilization of the natural gas infrastructure in Ontario (Ontario demand plus exports) is expected to increase between 2020 and 2040 on both an annual and a peak month basis, leading to continued utilization of the pipeline and storage assets in Ontario,

including the Dawn Parkway System, and the proposed Dawn Parkway System capacity expansion project should remain highly utilized in the future.

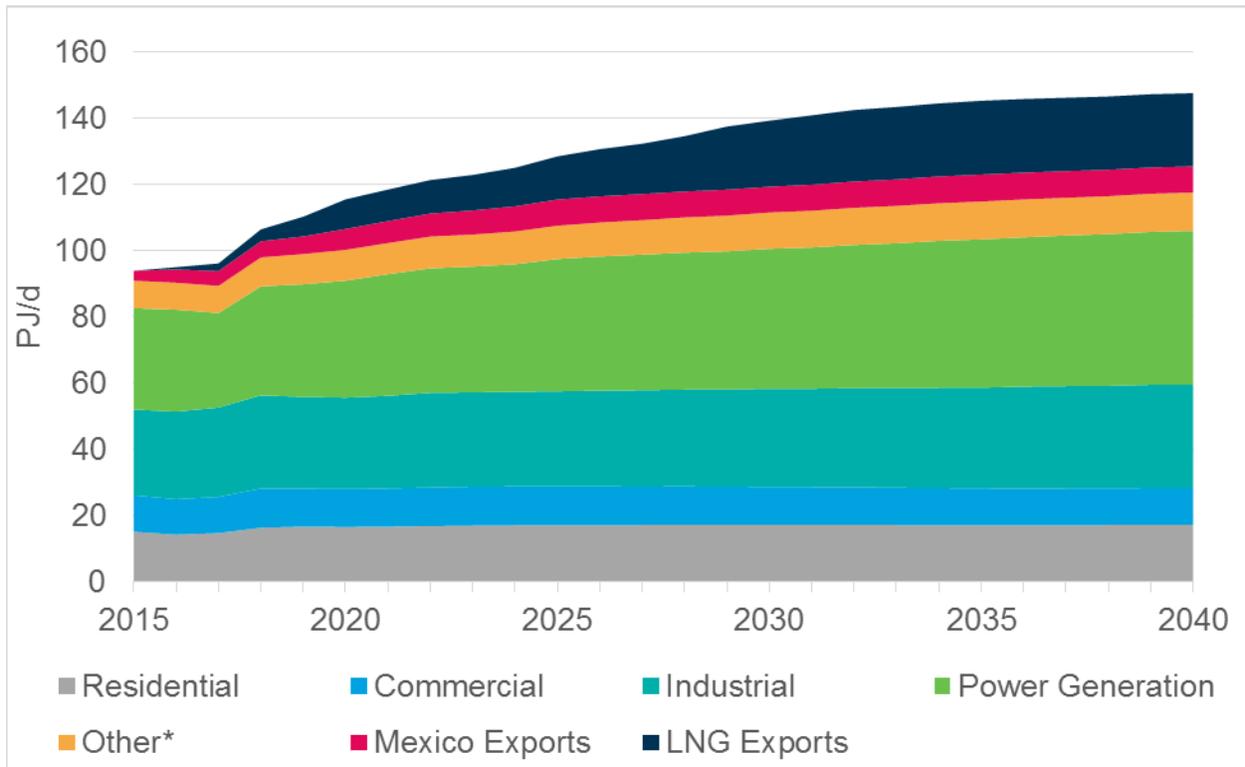
## 2 North American Natural Gas Market Outlook

This section discusses ICF's North American natural gas market outlook through 2040. ICF's forecasts for natural gas demand focus on the potential growth from LNG exports, the power generation sector and western Canadian oil sand developments. The section then discusses trends in North American supply sources, focusing on the role of WCSB and unconventional production (such as the Marcellus), impact of production costs, and the move toward natural gas liquids. This section then discusses about ICF's LNG export outlook, followed by future pipeline flow trends and natural gas price forecasts.

### 2.1 North American Demand

As shown in Figure 1, ICF expects North American natural gas demand to increase by about 40.6 PJ/d between 2018 and 2040. The growth in demand includes an increase of 19.9 PJ/d in North American consumption, and an increase of 20.7 PJ/d in LNG exports and pipeline exports to Mexico.

Figure 1 U.S. and Canadian Gas Consumption by Sector and Exports



Source: ICF GMM® June 2019 \* Includes pipeline fuel and lease & plant gas

Incremental power sector gas use is expected to make up 70 percent of total incremental growth in U.S. and Canadian domestic gas consumption between 2018 and 2040, growing 14 PJ/d over the period. Growth in gas demand for power generation is driven by a number of factors:

- ICF forecasts that 110 gigawatts (GW) of incremental combined cycle and combustion turbine gas-fired generating capacity will be built in the U.S. and Canada over the next 12 years.
- U.S. Electricity demand is projected to continue to grow modestly in the future despite being flat between 2008 and 2017. Prior to the 2007-2008 global recession, demand for electricity was growing at about 2 percent per year. Over the next twenty years, although GDP is forecast to grow at 2.1 percent annually, electricity demand growth is expected to average only about 0.7 percent per year, mainly due to implementation of energy efficiency measures. Even at this lower growth rate, annual electricity sales are expected to increase to over 4,000 Terawatt-hours (TWh) per year by 2026, or about 7 percent over 2018 levels (3,801 TWh annually).
- Environmental regulations in the United States will drive the power sector to dispatch more natural gas fired generation. The ICF Base Case assumes that all current air quality rules and regulations continue to be enforced. Renewable Portfolio Standards (RPS) states with active, mandatory RPS policies are included in the ICF Base Case. ICF Base Case also reflects the U.S. EPA's current rules for Mercury & Air Toxics Standards Rule (MATS), water intake structures (often referred to as 316(b)), and coal combustion residuals (CCR, or ash). It also includes Cross-State Air Pollution Rule (CSAPR), which was reinstated in January 2015. CSAPR has replaced the CAIR program, imposing regional and state caps on emissions of NOX and SO2. The ICF Base Case still includes regional carbon control programs, as well as a national CO2 charge in the later years of the forecast, based on the expectation that any Federal carbon policy will not take effect until the late-2020s. Adoption of Demand Side Management (DSM) programs and conservation and efficiency measures continue, consistent with recent history. ICF also assumes that existing nuclear units have a maximum lifespan of 60 years, which results in a significant number of nuclear retirements after 2030.
- ICF Base Case accounts for Ontario's Output Based Pricing System (OBPS) for carbon pricing. Growth in natural gas demand will be supported by nuclear generation units' refurbishment schedules throughout the 2020s and by the retirement of 3GW of nuclear capacity at Pickering before 2025.

Industrial demand accounts for 17 percent of the total growth in U.S. and Canadian natural gas consumption through 2040. In Canada, the majority of the industrial gas demand increase is from the development of the western Canadian oil sands. Excluding natural gas use for oil sands, the growth in industrial sector gas demand in the ICF Base Case is relatively small, as reducing energy intensity (i.e., energy input per unit of industrial output) remains a top priority for manufacturers.

Growth of gas demand in other sectors is limited. In the residential and commercial sectors, energy efficiency improvements lead to lower per-customer gas consumption, offsetting gas demand growth from an increase in the number of natural gas customers. Peak demand for gas, however, is projected to increase as gas for heating remains important during the winter. ICF is projecting modest growth in natural gas vehicles, primarily in fleet applications (e.g., urban buses). However, vehicular gas consumption is not a major contributor to total demand growth.

### 2.1.1 Western Canadian Natural Gas Demand

Natural gas demand in western Canada has a direct impact on Ontario markets due to its impact on natural gas supply available for export from the region. Figure 2 shows that western Canadian natural gas demand is expected to grow from 6.9 PJ/d in 2018 to nearly 13.8 PJ/d by 2040, driven by growth in LNG exports (discussed in Section 2.3), the industrial sector (specifically oil sands gas use), and pipeline fuel and plant fuel gas use.

Pipeline fuel demand grows from 0.3 PJ/d in 2018 to 0.4 PJ/d in 2040 and plant fuel demand grows from 1.1 PJ/d in 2018 to 1.4 PJ/d in 2040 as a result of increased volumes of natural gas being transported and gas being used at the production facilities.

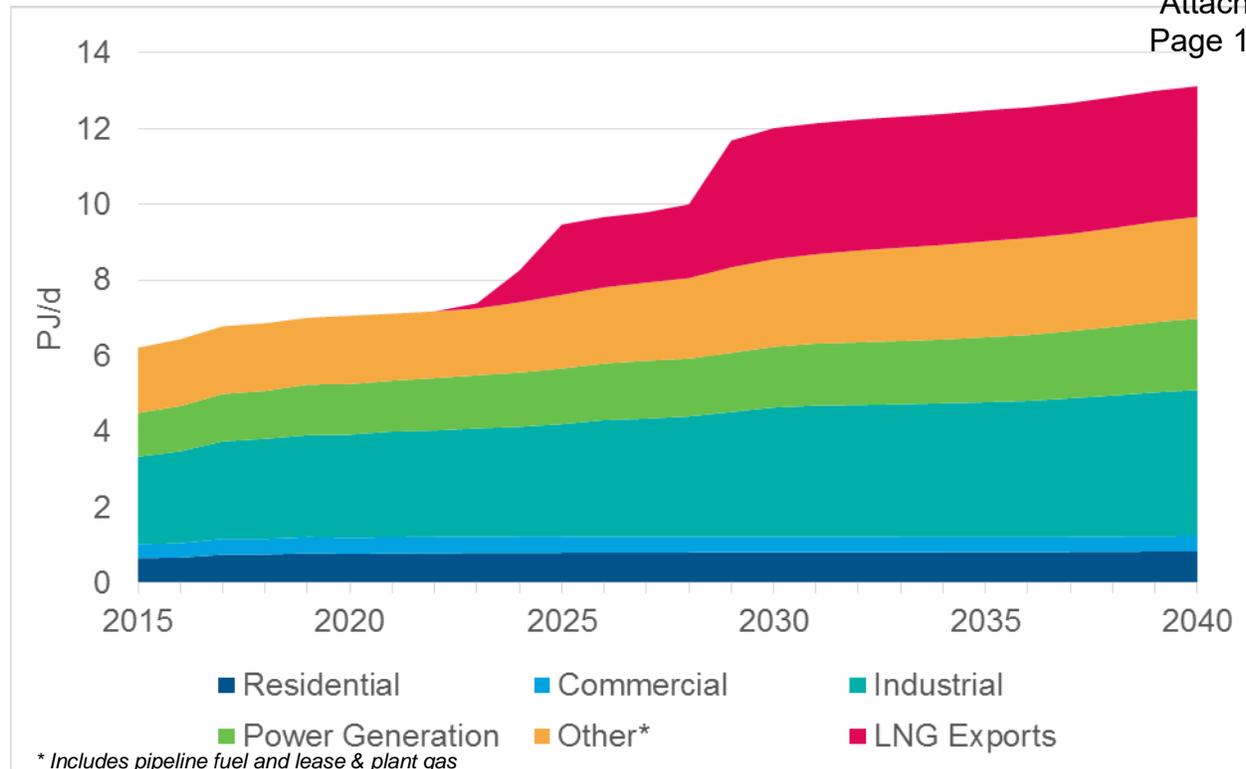
Development of Alberta's oil sands will lead to significant growth in the consumption of natural gas in Alberta. ICF expects industrial demand in Alberta to reach nearly 3.7 PJ/d on an annual basis by 2040 (more than Ontario's annual gas consumption). This represents an increase of about 1.2 PJ/d of natural gas demand between 2018 and 2040 and is consistent with growth in the Alberta Energy Regulator's projections.<sup>2</sup> It should be noted that development of the oil sands is dependent on the assumption of oil prices increasing throughout the projection period (shown in Figure 5) in ICF's forecast.

The most important source of demand growth in western Canada is from LNG exports. British Columbia is expected to start exporting LNG in 2023, increasing to 3.5 PJ/d of LNG exports by 2040. Without LNG exports from the west coast, gas resources in western Canada would not be produced, or would flow east. However, Shell's commitment to construct its LNG Canada facility along with additional projected construction in the ICF Base Case supports higher production from western Canada and an increase in westward flows instead of eastward flows. There is some risk that even with the construction of LNG Canada and another LNG export facility in western Canada, global demand for LNG can be lower than expected. There is also potential for higher volumes of LNG exports than ICF projects, especially if gas supplies in western Canada remain competitive based on global LNG prices.

Overall, the growth in natural gas demand for oil sands production and LNG exports could significantly reduce natural gas available for export from the WCSB to Ontario and other markets. Similarly, higher than expected LNG exports from the U.S. Gulf Coast could reduce Marcellus/Utica gas available for export to Ontario.

<sup>2</sup> <https://www.aer.ca/providing-information/data-and-reports/statistical-reports/st98/natural-gas/demand>

Figure 2 Western Canadian Gas Consumption by Sector



Source: ICF GMM® June 2019

## 2.2 North American Natural Gas Supply Outlook

### 2.2.1 ICF June 2019 Base Case Supply Outlook

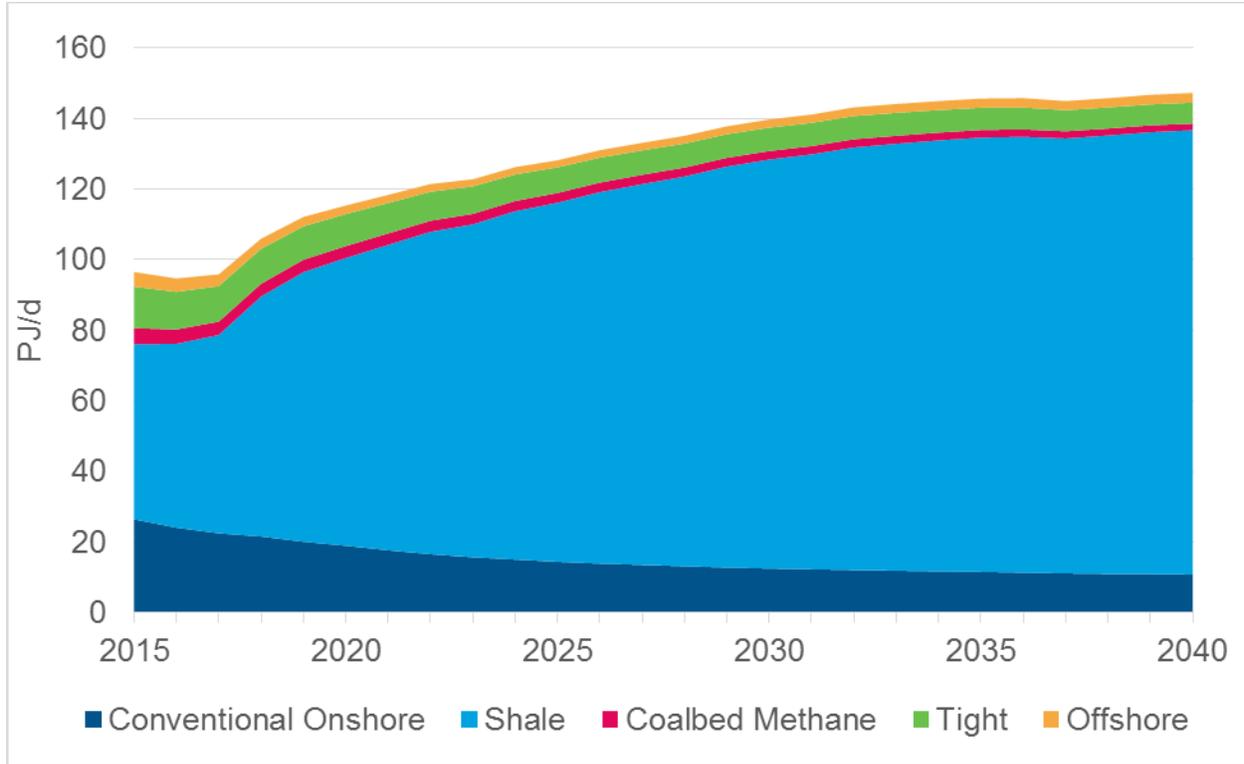
ICF projects U.S. and Canadian gas production to grow from about 106 PJ/d in 2018 to over 147 PJ/d by 2040, an average annual growth rate of 1.6 percent per year. This growth will continue to come from unconventional production, while conventional onshore production is expected to decline (see Figure 3). Annual production from U.S. and Canadian shale formations is expected to grow from about 68.1 PJ/d (approximately two thirds of total production) in 2018 to nearly 125.3 PJ/d (approximately 85% of total production) by 2040.

Figure 4 shows that the greatest production growth is from major shale formations in North America. They are located in the U.S. Northeast (Marcellus and Utica), the Mid-Continent (Barnett, Woodford, Fayetteville, and Haynesville), west Texas (Permian), and western Canada (Montney and Horn River). The Bakken Shale, which spans parts of North Dakota and Montana, is primarily an oil formation, but also has significant natural gas volumes. There are other shale formations in the U.S. that have not yet been developed for gas production.

So far in 2019, drilling activity has slowed down in much of North America as producers have faced pressure to spend within their means. In the near term, ICF's forecast includes this trend. In the longer term, our oil and gas price projections along with our supply cost analysis lead to production growth. Furthermore, global demand growth for natural gas is expected to lead to robust growth in the demand for LNG and will support growth in natural gas production from North

America. The IEA World Energy Outlook 2017, for example, forecasted 155 PJ/d of global natural gas demand growth between 2016 and 2040 in its New Policies case.

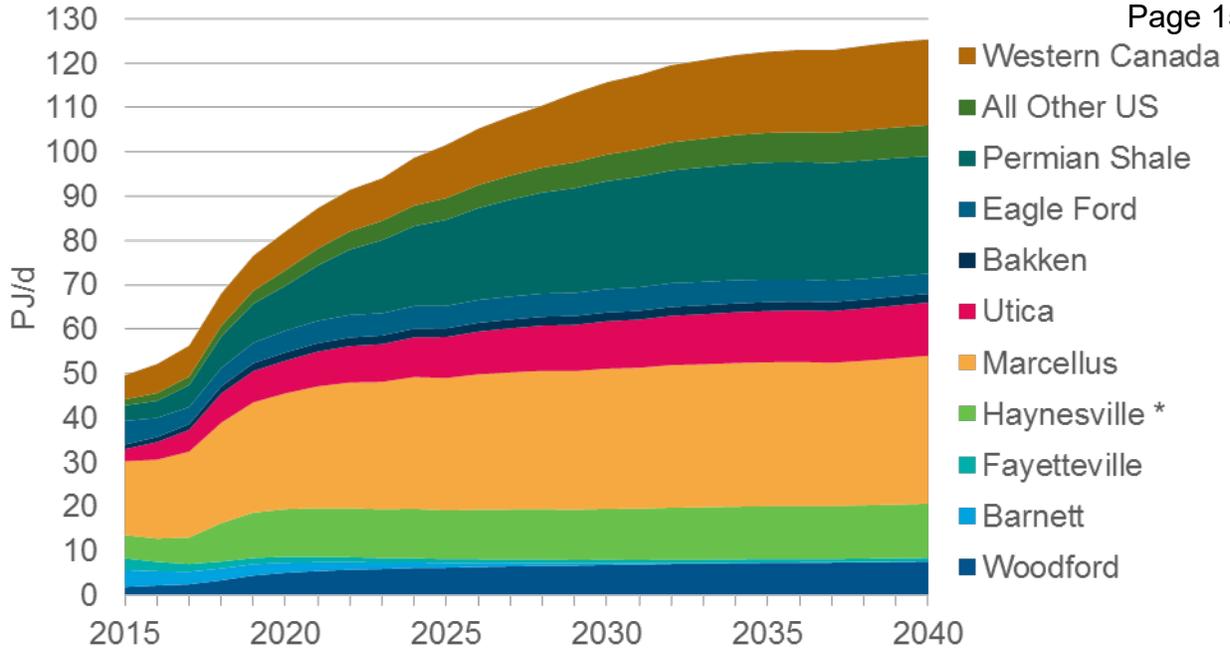
Figure 3 Projected U.S. and Canadian Gas Supplies



Source: ICF GMM® June 2019

Some of these North American shale resources are located in traditional supply regions, such as in the Gulf Coast, Mid-Continent and western Canada, while the Marcellus and Utica shale act like new supply basins in traditional gas demand centers. This geographic shift in the location of natural gas production has led to significant infrastructure investments to create or enhance the existing pathways between supply sources and demand markets.

Figure 4 Projected U.S. and Canadian Shale Gas Production

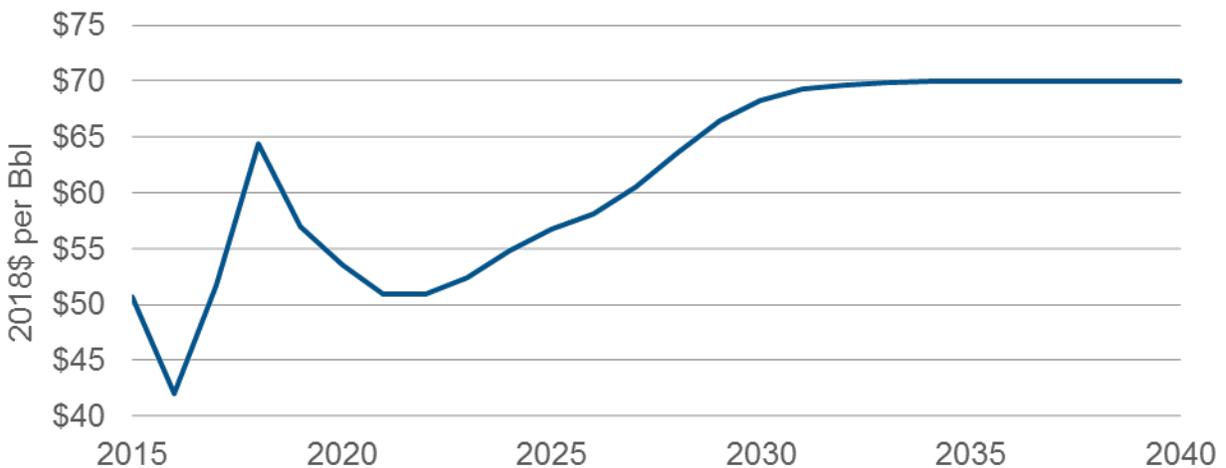


Note: Haynesville production includes production from other shales in the vicinity (e.g., the Bossier Shale).

Source: ICF GMM® June 2019

ICF's natural gas production forecast is further supported by its oil and gas price projections. ICF expects the U.S. Refiner Acquisition Cost of Crude Oil (RACC) price to increase in real dollar terms until it reaches \$70 per barrel in 2035 (Figure 5). This will spur associated gas production in oil plays in areas like west Texas and Alberta.

Figure 5 U.S. Refiner Acquisition Cost of Crude Oil Price Forecast



Source: ICF GMM® June 2019

## 2.2.2 Appalachia Supply Outlook

The largest source of North American natural gas supply is expected to come from the Marcellus and Utica shale plays. Though the dry gas production in Marcellus and Utica has been mostly flat over the past few months, it is still one of the most prolific natural gas plays within the U.S. with the highest year-over-year production growth in 2018 on an average annual basis compared to all other shale plays in United States. ICF projects production in the Marcellus and Utica to grow significantly over the next thirty years in the ICF Base Case.

Total dry gas production in Appalachia (Marcellus, Utica, and conventional plays in Ohio, Pennsylvania, Virginia, and West Virginia) grew by slightly over 4.2 PJ/d in 2018 on an annual average basis, with most of the growth coming in the months of June 2018 through November 2018. The growth was concentrated in the Marcellus and Utica plays. The growth slowed down in recent months, driven by a combination of infrastructure and weather related issues.

Infrastructure outages at the MarkWest gas processing plant facility in Washington County, Pennsylvania<sup>3</sup> and on Texas Eastern Transmission Company (TETCO) in Noble County, Ohio in January 2019<sup>4</sup> reduced the ability to process and transport natural gas. Mariner East 1 NGL pipeline shut down from late January until late April 2019<sup>5</sup> constraining the wet gas processing from liquids-rich Marcellus area. Production losses in Appalachia in recent months were also driven by freeze-offs in late January/early February 2019 caused by two major cold-weather events. These events reduced the gas supply and pipeline flows out of the Marcellus and Utica basins for several months.

ICF believes that the recent slowdown in production is a temporary phenomenon and the production is expected to rebound as there is an abundant amount of cheap shale gas resource in the Marcellus and Utica that can be recovered at the current natural gas prices. Moreover, the drilling and technology improvements in the region are likely to continue as producers have many years of experience drilling and producing shale gas from the area. As shown in Figure 6, production already started to rebound since March 2019 and ICF expects the production to continue to rebound to reach 34.1 PJ/d by December, an increase of 2.43 PJ/d from December 2018 with average annual production of 32.8 PJ/d in 2019.

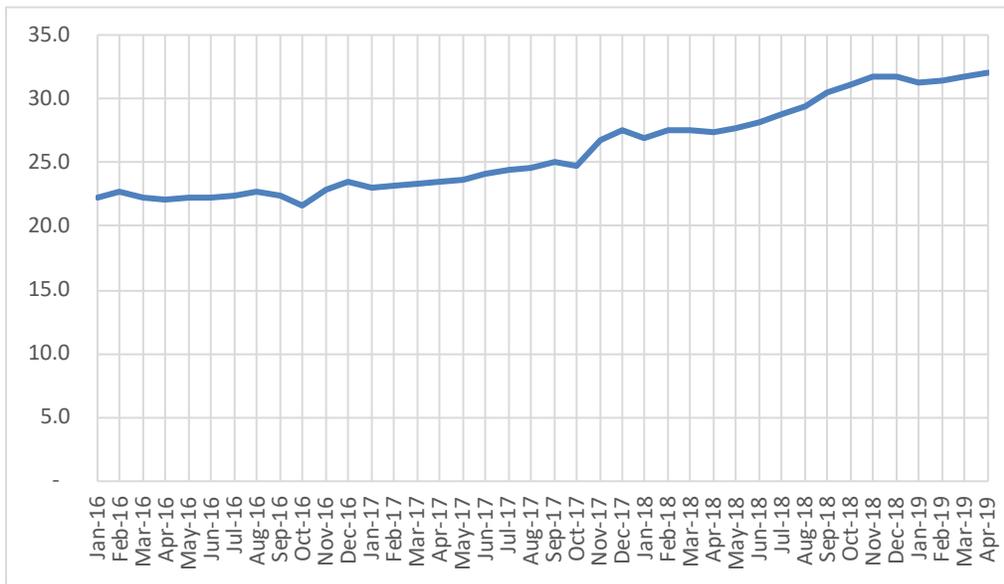
Well completions (drilling activity) slowed from 163 wells in May 2018 to 118 wells in December 2018, but rebounded back to 149 in April 2019 (Figure 7). ICF expects the well completions to reach almost 190 wells per month by December, a total of over 1,900 well completions in 2019. ICF projects that the drilling activity in Appalachia will continue to increase in the near term with total well completions increasing to 2,270 wells by 2025 and to 2,490 wells by 2040 (Figure 8).

<sup>3</sup> <https://www.post-gazette.com/local/washington/2018/12/14/Four-injured-explosion-at-MarkWest-gas-processing-plant-in-Washington-County/stories/201812140086>

<sup>4</sup> <https://www.reuters.com/article/us-enbridge-inc-gas/enbridges-tetco-ohio-pipe-blast-causes-gas-flows-to-decline-idUSKCN1PG2ON>

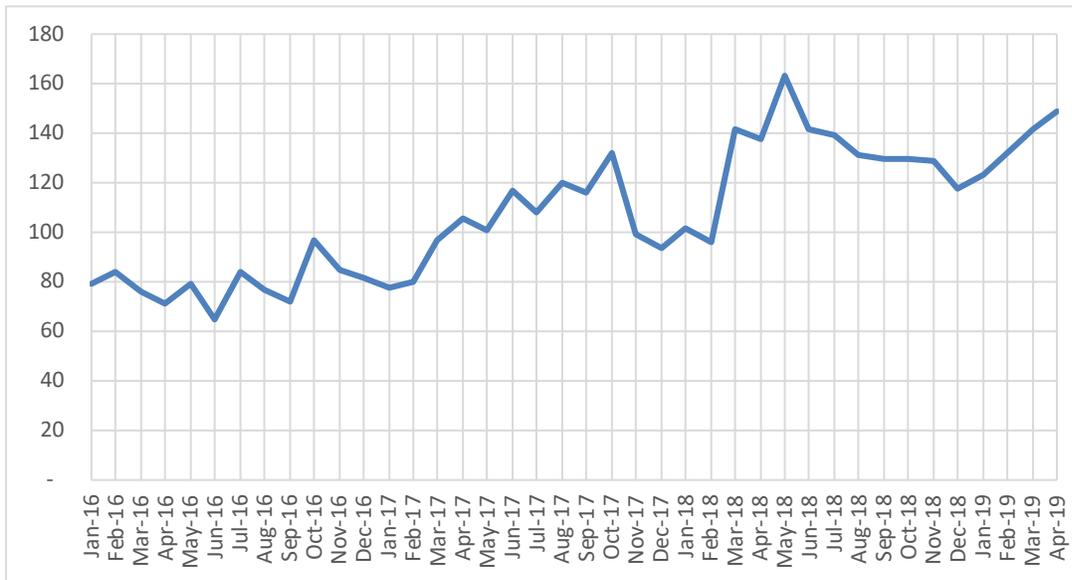
<sup>5</sup> <https://marcellusdrilling.com/2019/04/mariner-east-1-ngl-pipe-restarts-today-after-shutdown-since-jan/>

Figure 6 Appalachia Monthly Dry Gas Production, PJ/d



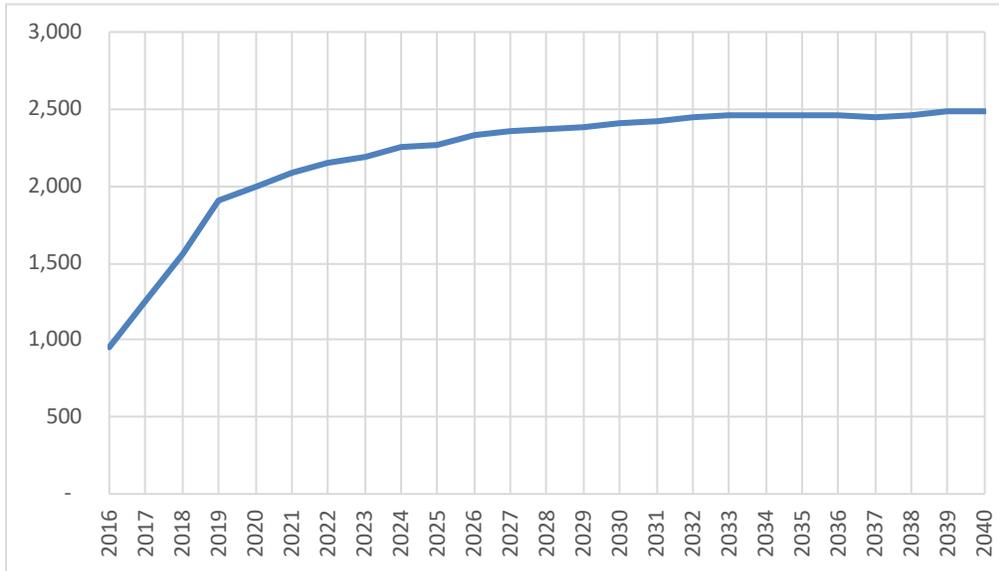
Source: Based on ICF Analysis of EIA data

Figure 7 Appalachia Monthly Well Completions



Source: EIA Drilling Productivity Report, <https://www.eia.gov/petroleum/drilling/>

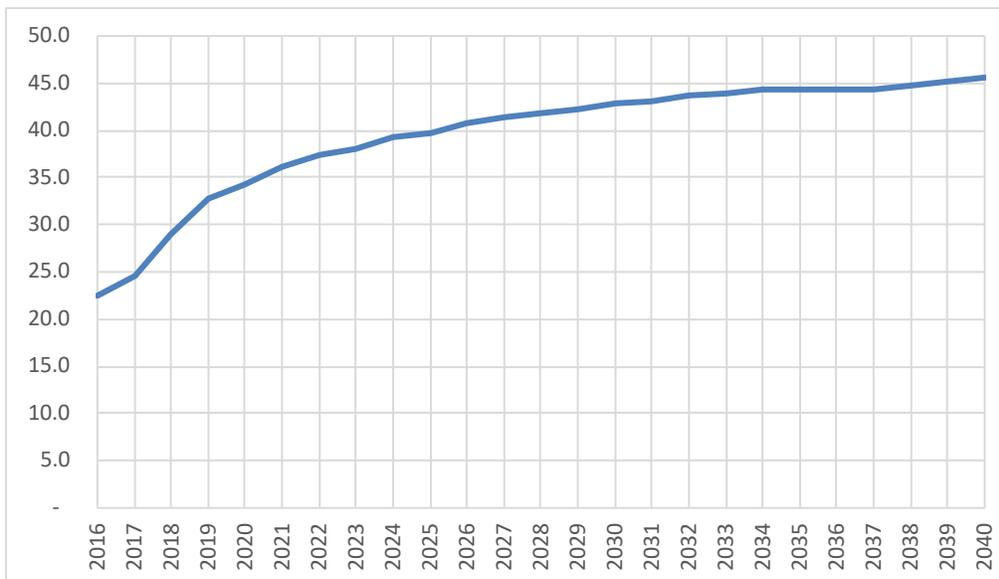
Figure 8 Appalachia Annual Well Completions



Source: EIA Drilling Productivity Report (Historical through 2018), ICF Q2 2019 Base Case (Projection)

Dry gas production is projected to grow to about 40 PJ/d by 2025 and over 45 PJ/d by 2040 (Figure 9). This robust growth in drilling activity and production is supported by a large resource base in the Marcellus and Utica with roughly 900,000 PJ (850 Tcf) of economically recoverable dry gas at Henry Hub gas price of \$3/MMBtu (in 2016 dollars).

Figure 9 Appalachia Annual Average Dry Gas Production, PJ/d



Source: Based on ICF Analysis of EIA data (Historical through 2018), ICF Q2 2019 Base Case (Projection)

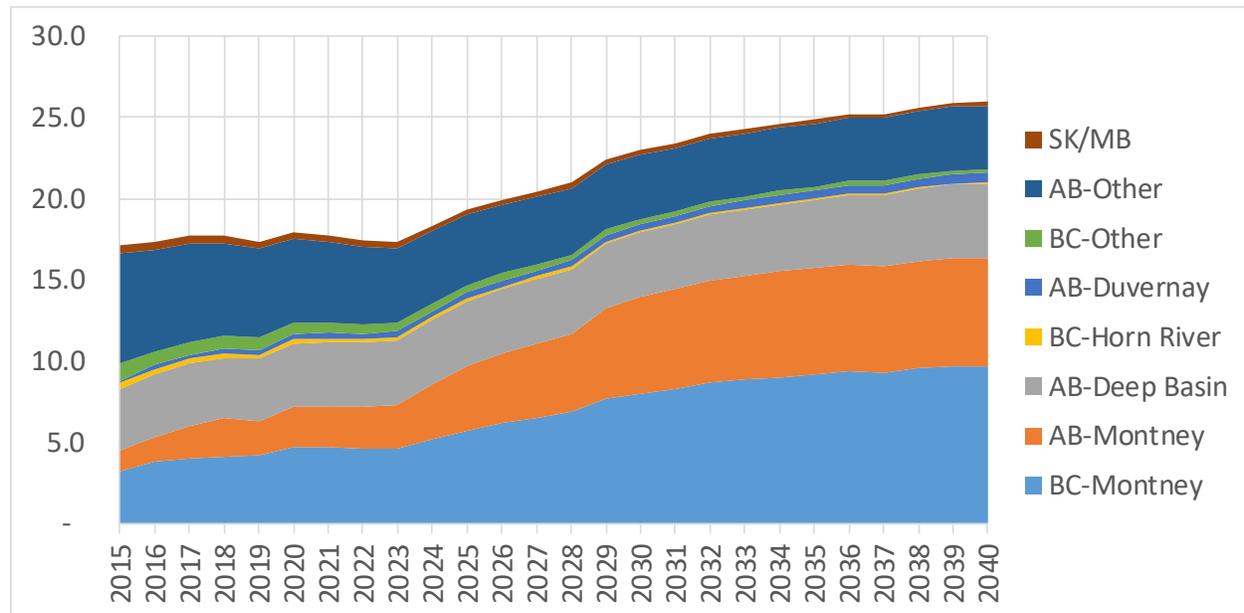
### 2.2.3 Western Canada Supply Outlook

Natural gas production in the Western Canadian Sedimentary Basin (WCSB) has been growing slowly or remaining stable since 2012. However, WCSB production is expected to experience more rapid growth in the future. ICF projects WCSB production to grow from 17.7 PJ/d in 2018 to 26.0 PJ/d in 2040.

More importantly, the location of WCSB production is also shifting as conventional natural gas production in the south and east of Alberta has been declining, while shale gas production in the western and northern regions, including the Montney and other related plays, has been growing rapidly.

The Montney shale play, extending from British Columbia into Alberta, is the largest unconventional play in Canada. The National Energy Board (NEB) resource assessment for this play suggests a marketable shale gas potential of about 475,000 PJ (449 Tcf)<sup>6</sup>. Shale gas production from Montney increased from an annual average of 4.5 PJ/d in 2015 to 6.5 PJ/d in 2018 (Figure 10). Two other large unconventional plays in the WCSB include Horn River in northeast British Columbia and Duvernay in Alberta. The NEB assessed each of the plays to have about 82,000 PJ of marketable shale gas potential. Gas production for Horn River has been in decline from a peak of over 0.6 PJ/d in 2013 to less than 0.3 PJ/d in 2018. Duvernay shale gas production is growing from about 0.1 PJ/d in 2013 to an average of 0.3 PJ/d in 2018.

Figure 10 Western Canada Annual Average Dry Gas Production, PJ/d



Source: Based on ICF Analysis of NEB data (Historical through 2018), ICF GMM® June 2019 (Projection)

<sup>6</sup> The Current State of Canadian Unconventional Oil and Gas Plays, SPE, July 2018, <https://spe.org/en/print-article/?art=4443>

Despite robust unconventional gas production growth, the overall western Canada natural gas production has been relatively flat due to rapid production decline from conventional gas in Alberta and British Columbia. Total western Canada gas production increased by 0.6 PJ/d from 17.1 PJ/d in 2015 to 17.7 PJ/d in 2018.

ICF Base Case projects robust gas production growth from the Montney play which offsets declining overall gas production starting from 2023, mainly due to projected growth in LNG exports from British Columbia. Montney gas production is projected to reach 9.7 PJ/d by 2025 and 16.3 PJ/d by 2040.

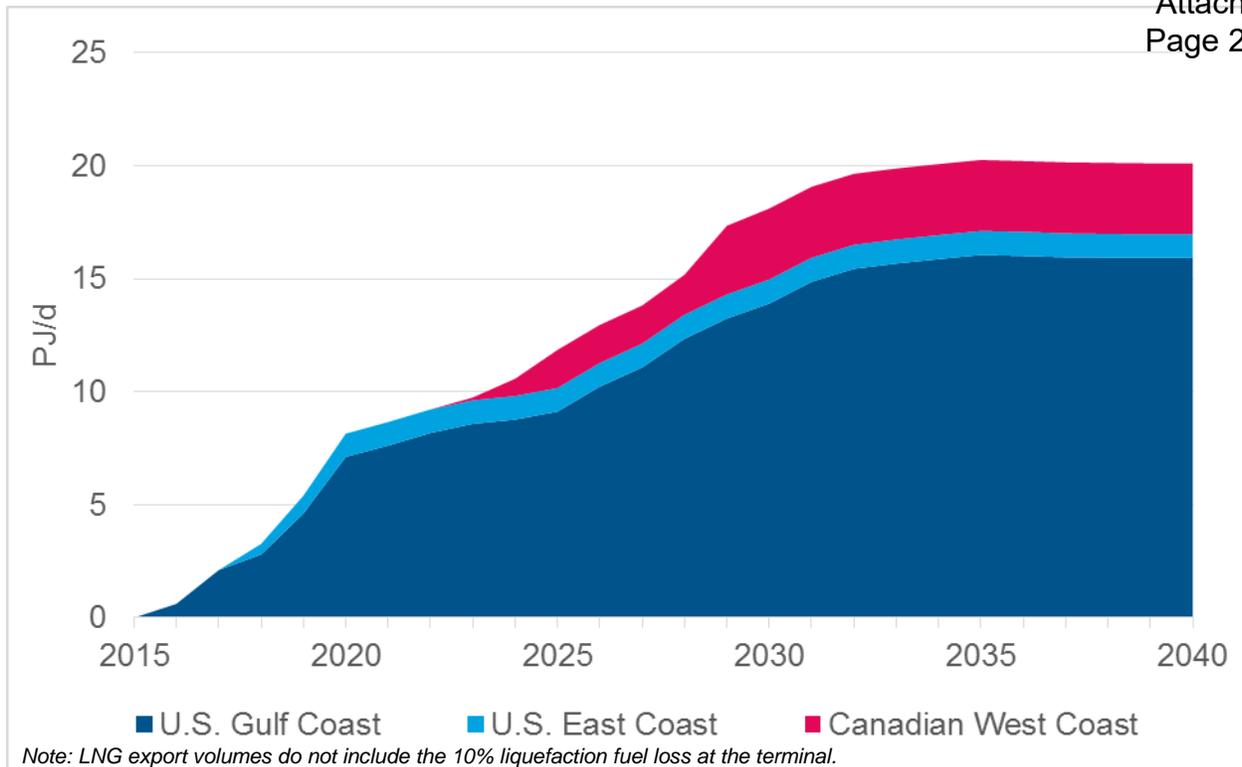
Much of the growth in WCSB production is expected to occur in the western side of the basin, and to be dedicated to new LNG export facilities in British Columbia. While Pacific LNG export facilities will contribute to overall North American market development and support a significant increase in WCSB production, many other North American markets also will compete for new WCSB shale gas production, including: (i) traditional western Canadian markets; (ii) U.S. Pacific; (iii) U.S. Mid-West; and (iii) eastern North American markets. WCSB production is anticipated to increase from approximately 17.3 PJ/d in 2019 to 26.0 PJ/d by 2040. Of this production, the volumes available for pipeline transportation to the markets discussed above are expected to increase from approximately 10 PJ/d in 2019 to 12 PJ/d by 2040.

## 2.3 North American LNG Exports

LNG exports are expected to provide additional markets for both Canadian and U.S. natural gas production. In Canada, the NEB has received applications for 34 projects located in British Columbia and 49 applications in total. 40 of those projects have been approved by the NEB. In the U.S., the U.S. Department of Energy has received 60 applications to export LNG to non-Free Trade Agreement (FTA) countries. Most of the major LNG-consuming countries, including Japan, do not have FTAs with the U.S. So far, 31 facilities have received approval for both FTA and non-FTA exports.

The number of LNG facilities that may eventually enter the market will depend on the ability of the proponents to sign long-term supply contracts with international buyers and to secure project financing and regulatory approvals. Based on our assessment of global LNG demand and supply, ICF is projecting the completion of ten North American export facilities between 2016 and 2031 (two in Canada, six on the U.S. Gulf Coast, and two on the U.S. East Coast), exporting a total of 20 PJ/d by 2033 (see Figure 11 below). The Canada LNG facilities are dependent on the development of pipeline capacity to transport natural gas from eastern British Columbia and western Alberta to the LNG facilities in British Columbia. Upon completion, the increase in natural gas demand from the LNG facilities will increase natural gas prices in the WCSB, reducing the competitiveness of WCSB natural gas in other markets, including the U.S. Midwest and U.S. Northeast, reducing exports to these markets.

Figure 11 Projected North American LNG Exports



Source: ICF GMM® June 2019

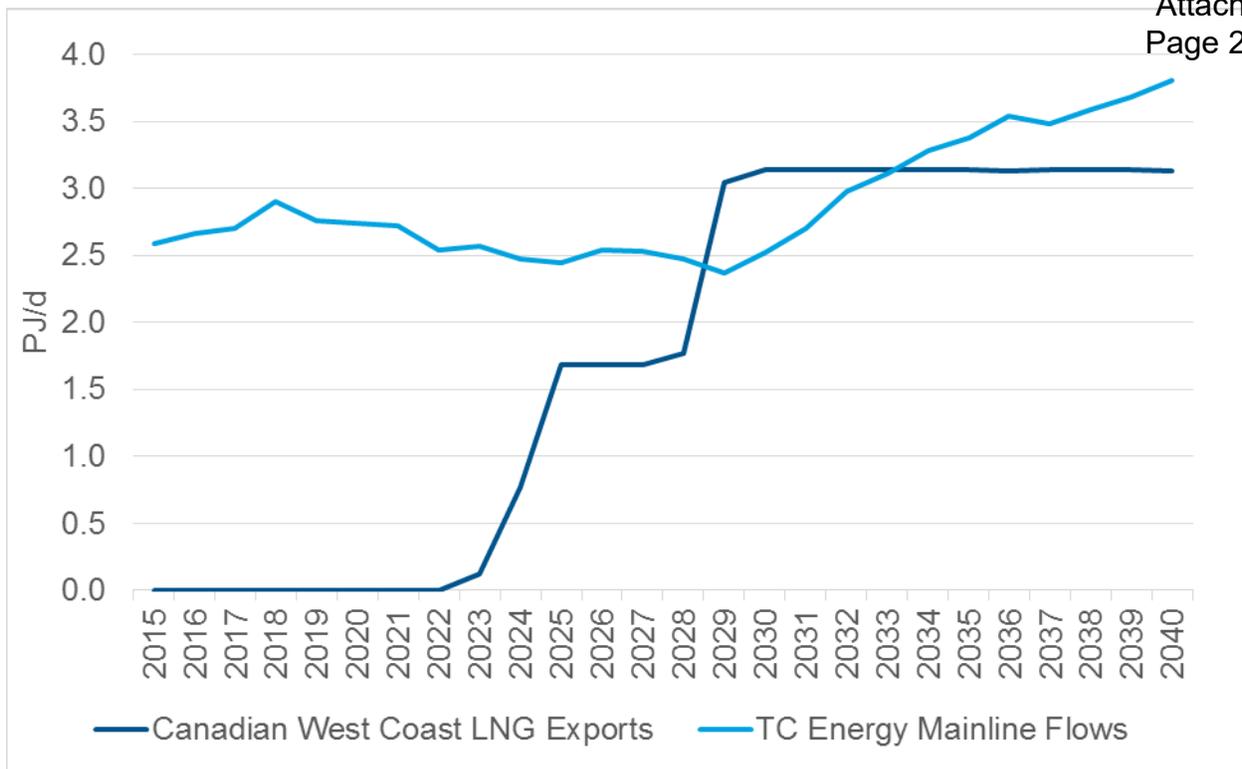
### 2.3.1 LNG exports from British Columbia

In the ICF Base Case, ICF projects two LNG export projects will be built in British Columbia by 2024, creating 1.1 PJ/d of incremental demand for WCSB natural gas by 2025 and 3.2 PJ/d by 2030. The first phase of Shell’s LNG Canada, which will have a capacity of 1.9 PJ/d, received an FID in 2018. As illustrated below in Figure 12, the two LNG export terminals in ICF Base Case alone will approach the projected flows on the TC Energy Mainline by 2028.

ICF estimates that about 80-90 percent of the total natural gas required for these facilities, or about 0.9 to 1 PJ/d for every 1.1 PJ/d of exports, will come from an increase in western Canada production specifically for LNG exports. The remaining 0.1 to 0.2 PJ/d will displace natural gas exports along existing pipeline routes, primarily on the TC Energy Mainline east from Alberta.

The ICF Base Case represents a conservative projection of the potential LNG exports. In the last year, several major milestones have been reached (including the FID for LNG Canada). Any additional LNG projects beyond what ICF assumes in the ICF Base Case can likely result in LNG exports well above the levels projected.

Figure 12 TC Energy Pipeline Flows East into Manitoba versus Canadian LNG Exports



Source: ICF GMM® June 2019

Even though much of the gas flowing to the export facilities will be incremental gas production developed specifically for export, some volumes are met with reduced export volumes out of Alberta. As a result, natural gas prices at the AECO hub will be higher as a response to LNG export facilities bidding away natural gas supplies.

The growth in West Coast LNG exports is expected to hold down natural gas flows from the WCSB to other markets through about 2030. After 2030, generally higher North American natural gas prices will lead to growth in WCSB production and slow growth in natural gas flows east from Alberta. Additional growth in Canadian West Coast LNG export capacity after 2030 is possible, and would reduce flows to other markets relative to the current ICF Base Case.

### 2.3.2 East Coast Canadian LNG Projects

Seven LNG projects sited in eastern Canada have been proposed and are in various stages of development and approval. These terminals will most likely use gas supplies sourced in the U.S. Northeast, at the Dawn Hub, or in western Canada flowing through Ontario to supplement any Canadian Maritimes production. However, ICF currently does not include any East Coast Canadian terminals in the ICF Base Case.

Development of any East Coast LNG export facilities would be expected to increase the need for pipeline capacity into the Northeast US and the Canadian Maritimes, and increase the utilization of, and value of, existing pipeline capacity in the region and along all of the routes into the region.

ICF does not include any East Coast Canadian terminals in its ICF Base Case. However, Pieridae Energy, which is developing the Goldboro LNG facility in Nova Scotia, has acquired gas producing assets in Alberta, and has recently stated that it has reached agreement for pipeline capacity from TC Energy and Enbridge sufficient to deliver the gas to Goldboro for the first train. Pieridae has stated its intention of declaring a positive FID in late 2019 or early 2020. Goldboro LNG would have two trains that would require about 0.9 PJ/d of feedgas each.

## 2.4 North American Pipeline Flows and Capacity Requirements

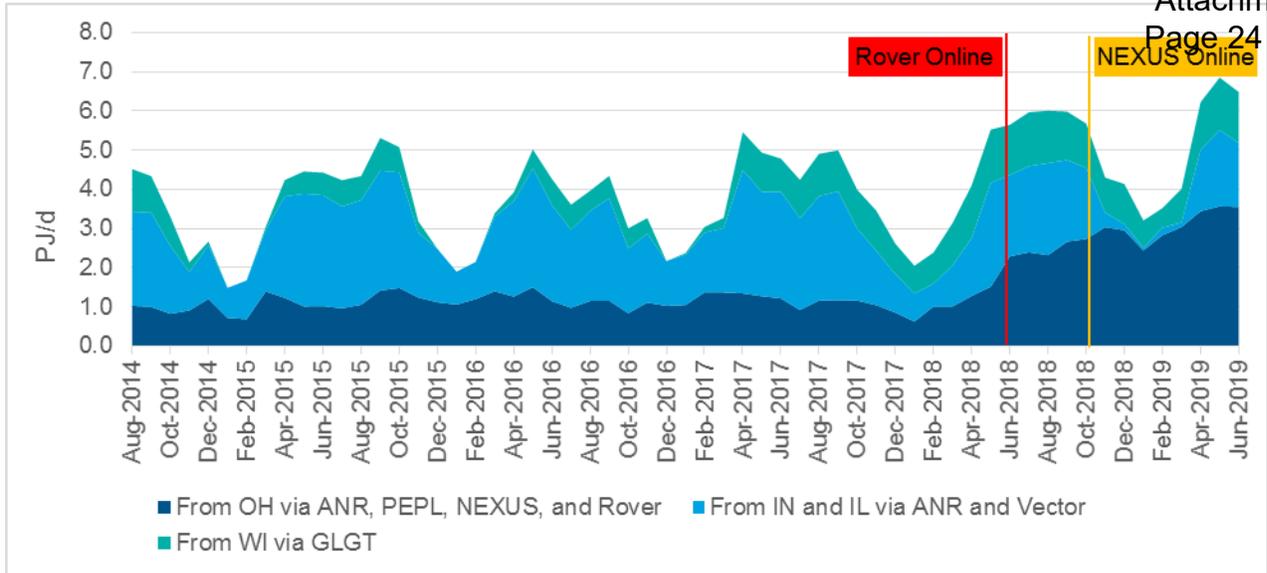
### 2.4.1 Pipeline Flows

As regional gas supply and demand continue to shift over time, there are likely to be continuing significant changes in interregional pipeline flows. Historically, considerable volumes of gas flowed from Ontario into the U.S. Northeast through three major pipeline paths: at Niagara (via TC Energy) into New York; at Iroquois (via TC Energy) into New York; and at East Hereford (via TC Energy) into New Hampshire. In the past several years, on an average annual basis, the flow of natural gas has reversed at Niagara. These supplies augment the growing volume of gas entering Ontario through Michigan (bolstered by the construction of the NEXUS and Rover pipelines as well as the establishment of the TC Energy Dawn LTFP service).

Recent changes in pipeline capacity into Michigan have changed the sources of natural gas into Michigan and into Ontario. The completion of the Rover and NEXUS Pipelines into the Midwest and Michigan from the Marcellus/Utica basin have increased the flow of gas from these basins into Michigan, and decreased the flows into Michigan on existing pipelines from the west and south. The completion of Rover and NEXUS has also corresponded with an increase in flows into Ontario from Michigan during the same period. Figure 13 and Figure 14 show the historical flows into and out of Michigan.

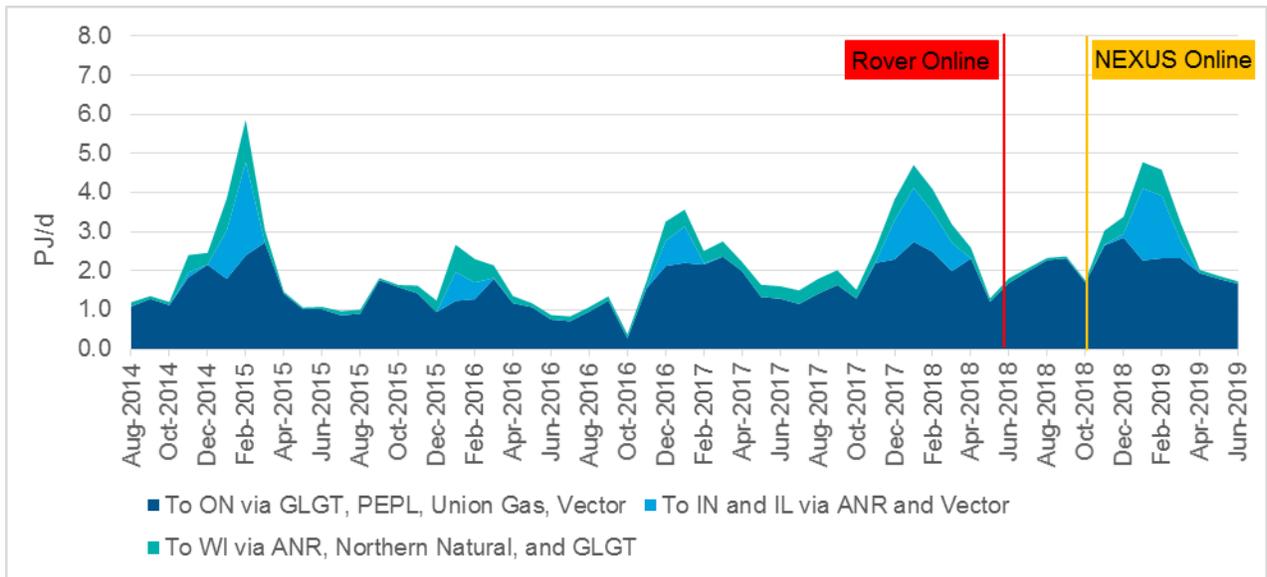
The growth in Marcellus and Utica shale gas production in the Appalachian Basin (primarily Pennsylvania, West Virginia, and Ohio) displaced gas that once was imported into New York from Ontario via Niagara, and from pipelines from the Gulf Coast. In effect, the Appalachian Basin became a major producer of gas and supplies gas to consumers throughout the eastern North America.

Figure 13 Historical Flows Into Michigan



Source: OPIS PointLogic Energy, an "IHS Markit" Company

Figure 14 Historical Flows Out of Michigan



Source: OPIS PointLogic Energy, an "IHS Markit" Company

Changes in peak winter flows will not follow exactly the same patterns. ICF is projecting peak winter flows from Ontario to the U.S. to remain at or near pipeline capacity limits on all of the pipelines serving Northeastern U.S. demand centers (PNGTS, Iroquois, and other smaller pipelines) even if annual flows along these paths decline.

### 2.4.2 Pipeline Capacity

Much of the market demand growth for natural gas is projected to occur in the U.S. Gulf Coast region due to growth in LNG exports and the U.S. Southeast and Mid-Atlantic due to growth in

power generation demand, while most of the increase in natural gas production is expected to occur in the U.S. Northeast and in the Permian region. The shifts in production location, and the resulting changes in natural gas flows have been accompanied by aggressive midstream infrastructure development over the past few years, a trend that will need to continue in order to support additional production from the Marcellus and Utica.

Many gas pipeline projects have been completed to de-bottleneck Marcellus gas supplies, and there are still many projects under development. ICF is currently tracking more than 15 pipeline projects in the Appalachian Basin. Additionally, many of the gas pipeline projects are localized expansions of existing infrastructure that allows for incremental production to enter the existing pipeline network. ICF assumes that many of these smaller projects will proceed.

There are a number of larger gas pipeline projects that are much broader in geographic reach. Examples include the Mountain Valley Pipeline sponsored by Equitrans and the Atlantic Coast Pipeline sponsored by Dominion Energy. Those projects aim to give the Mid-Atlantic region and Transco Zone 5 direct access to Marcellus/Utica gas. During the past couple of years, many large projects that aimed to reverse flows on existing pipelines were completed too. The Atlantic Sunrise (Transco), Leach Express (Columbia Gas), Rayne Express (Columbia Gulf), Access South (TETCO), and the Broad Run Expansion (TGP) are examples of flow reversal projects on existing pipelines that move Marcellus/Utica gas southwards.

Two major projects that move Marcellus/Utica gas into the U.S. Midwest and Ontario were completed in 2018:

- 1) **The Nexus Pipeline**, developed by DTE Energy and Enbridge, with a capacity of 1.6 PJ/d with the capability to deliver 1.5 PJ/d of pipeline capacity from eastern Ohio to Michigan and the Dawn Hub in Ontario.
- 2) **The Rover Pipeline**, developed by Energy Transfer Partners, with a capacity of 3.4 PJ/d with the capability to deliver 1.6 PJ/d of pipeline capacity from eastern Ohio, western PA, and WV to Michigan and the Dawn Hub in Ontario (and other points).

These two pipelines with a total capacity of 5 PJ/d have the capability to deliver to 3.1 PJ/d of new gas supplies to Michigan and Ontario markets with the remaining gas making its way to other markets via interconnects with other inter-state pipelines (like ANR, Panhandle, etc.).

## 2.5 Natural Gas Price Outlook

Since 2015, annual average natural gas prices at Dawn have remained between US\$2.50/MMBtu and \$3.15/MMBtu. Prices at Henry Hub have stayed within a similar range while prices in Alberta and the Marcellus/Utica have been about \$1.00/MMBtu lower than Dawn on average during the same time period.

Going forward under normal weather conditions, ICF forecasts a three-year decrease in annual average natural gas prices at Henry Hub until 2022 as production continues to increase followed by a steady increase in prices compared to current levels as growth in natural gas demand and LNG exports puts upward pressure on prices. Gas prices at Henry Hub are projected to increase gradually in the long term, climbing from less than U.S. \$3.00/MMBtu in 2019 to over \$3.50/MMBtu in 2031 in 2018 dollars (see Figure 15 below). This increase in gas prices

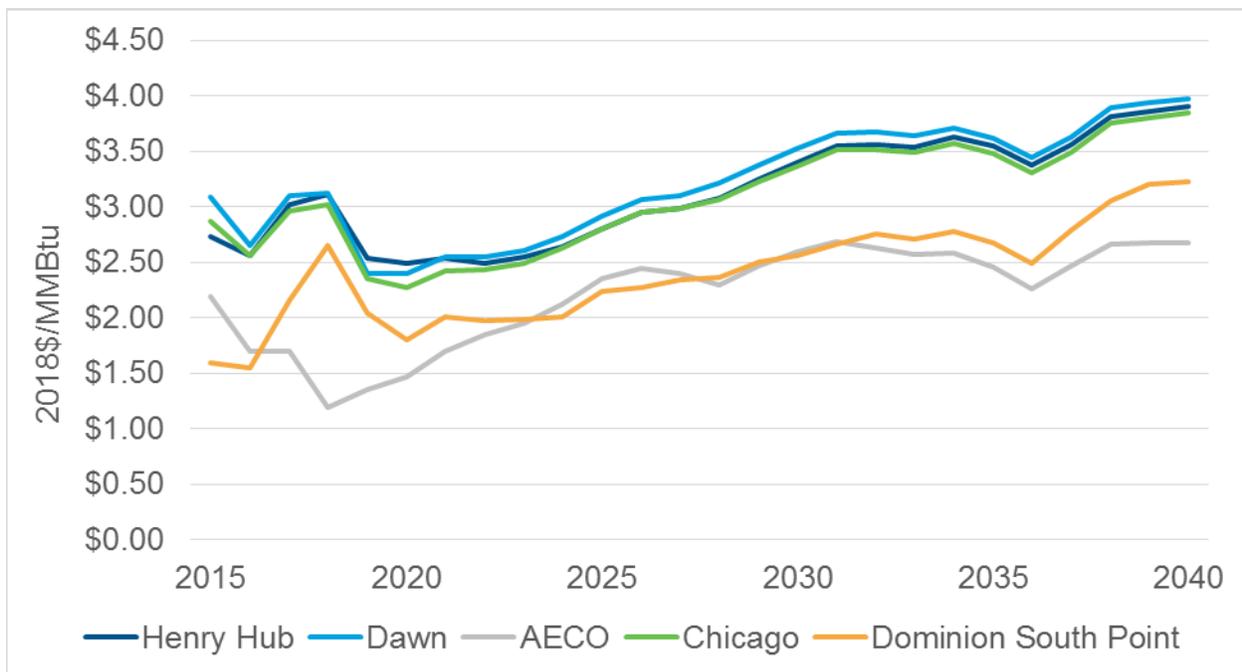
supports development of new sources of supply, but prices are not so high as to discourage demand growth.

While gas prices throughout North America are expected to remain moderate, market dynamics will influence regional prices.

The price difference (or basis) between Henry Hub and Dawn is projected to remain narrow throughout the ICF forecast. Dawn basis goes from being \$0.01/MMBtu in 2018 to -\$0.09/MMBtu in 2020 and then it averages about \$0.09/MMBtu in real 2018 dollars for the remainder of the forecast. The growth in supply from the Appalachian Basin will suppress natural gas prices in the regions directly connected with the new supply, including the U.S. Midwest, Ontario and Québec. Improved access to Marcellus/Utica production is already limiting price fluctuations in Ontario.

The increase in demand in western Canada for both LNG and oil sands, combined with somewhat higher shale gas production costs and slower shale gas production growth in the region will lead to an increase in prices in the WCSB but the price spread between AECO and Dawn still averages about \$1.00/MMBtu in the ICF forecast. In the event that British Columbia LNG exports exceed projected levels or oil sands development requires more gas than expected, Ontario and other eastern Canadian consumers will be impacted by both the actual demand increase and the associated price response (i.e., price increases) for supplies originating in the WCSB.

Figure 15 GMM Average Annual Prices for Selected Markets



Source: ICF GMM® June 2019

## 3 Ontario Natural Gas Market Outlook

The recent changes in the North American natural gas market are creating both challenges and opportunities for Ontario. Natural gas consumption in Ontario is expected to see continued growth, led by expanding use in the power sector. At the same time, natural gas supplies available to Ontario from western Canada, the traditional source for most of Ontario's natural gas supply, declined as Marcellus and Utica production increases. These flows have stabilized and started to increase slowly as shale gas production in the WCSB has displaced conventional production, and as TC Energy has changed tariff structures on the Mainline. However exports east from the WCSB are expected to stabilize and decline slowly through 2030 as West Coast LNG comes on-line, before starting to increase again after 2030. Growth in gas production from the Marcellus and Utica plays in the Northeastern U.S. provides a rapidly growing source of potential new supply for the region.

### 3.1 Ontario Natural Gas Demand

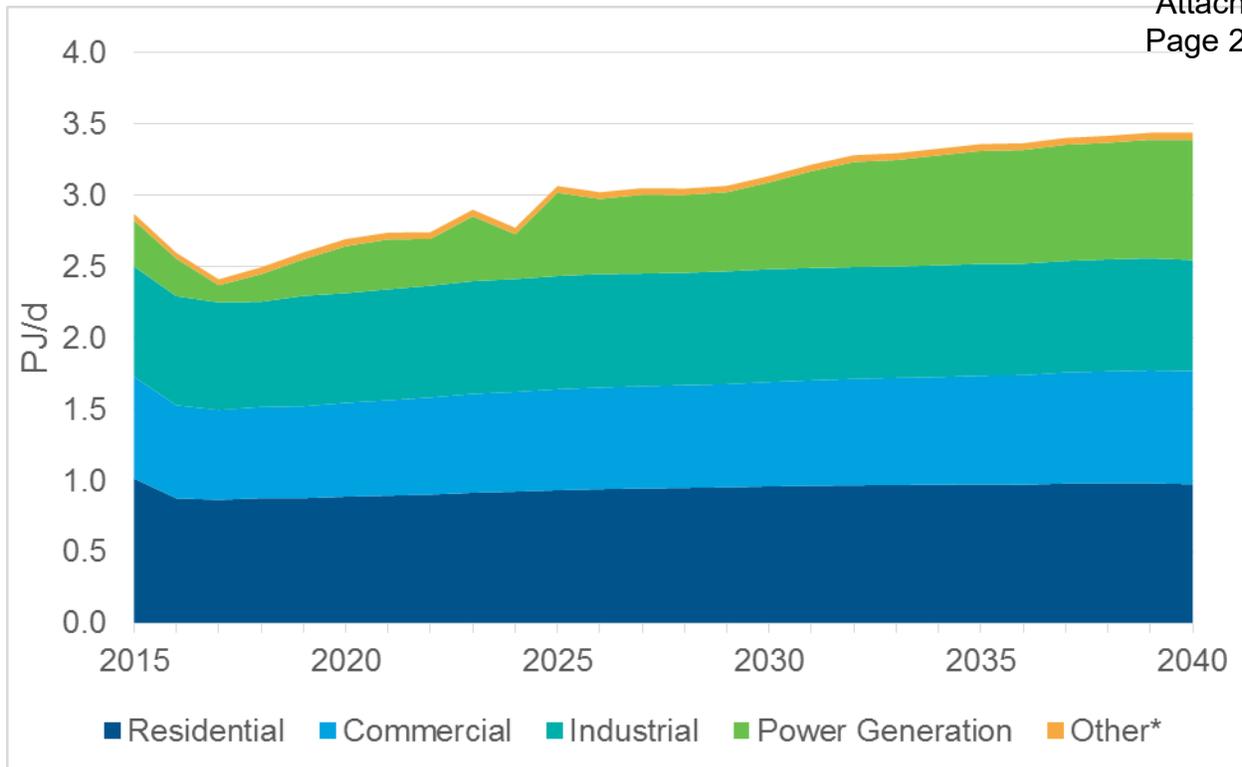
Total Ontario natural gas demand includes both consumption of natural gas in the province, as well as transshipments of natural gas from western Canada and the U.S. Midwest to Québec and the U.S. Northeast. Gas consumption growth in Ontario will average one percent annually between 2018 and 2040, while growth in total natural gas supply flowing to and through Ontario will average 1.3 percent annually as exports to the U.S. continue to decline.<sup>7</sup> These two topics are discussed below.

#### 3.1.1 Ontario Natural Gas Consumption

Natural gas consumption in Ontario is expected to experience modest growth, led by expanding use in the power sector (see Figure 16). Demand growth in the power sector is primarily due to nuclear retirements and refurbishments as well as the Output Based Pricing System (OBPS) for carbon pricing in Ontario. Higher utilization of existing power plants in Ontario will be driven by modest demand growth and retirements of nuclear capacity. Natural gas use in the industrial sector is also expected to increase over time with economic growth. Growth in other end-use sectors will remain modest, as energy efficiency improvements offset the impact of GDP growth on residential and commercial sector demand.

<sup>7</sup> Includes pipeline exports to Québec and the U.S. Mid-Atlantic and storage injections.

Figure 16 Ontario Natural Gas Consumption by End Use



Source: ICF GMM® June 2019 \* Includes lease, plant, and pipeline fuel

### 3.1.2 Ontario Natural Gas Exports

Over the past decade, conventional natural gas production has declined in western Canada while unconventional natural gas production in the U.S. Northeast has increased. Annual export volumes from Ontario into the U.S. Northeast have leveled off since 2015, as shown in Figure 17. Currently, gas flow destined for Québec, Waddington (Iroquois), and East Hereford (PNGTS) from the Marcellus/Utica are routed through Dawn and Ontario due to the challenges associated with development of pipeline capacity directly from the Marcellus/Utica into New York and New England, as well as the access to the Dawn Hub and storage capacity in Ontario and Michigan.

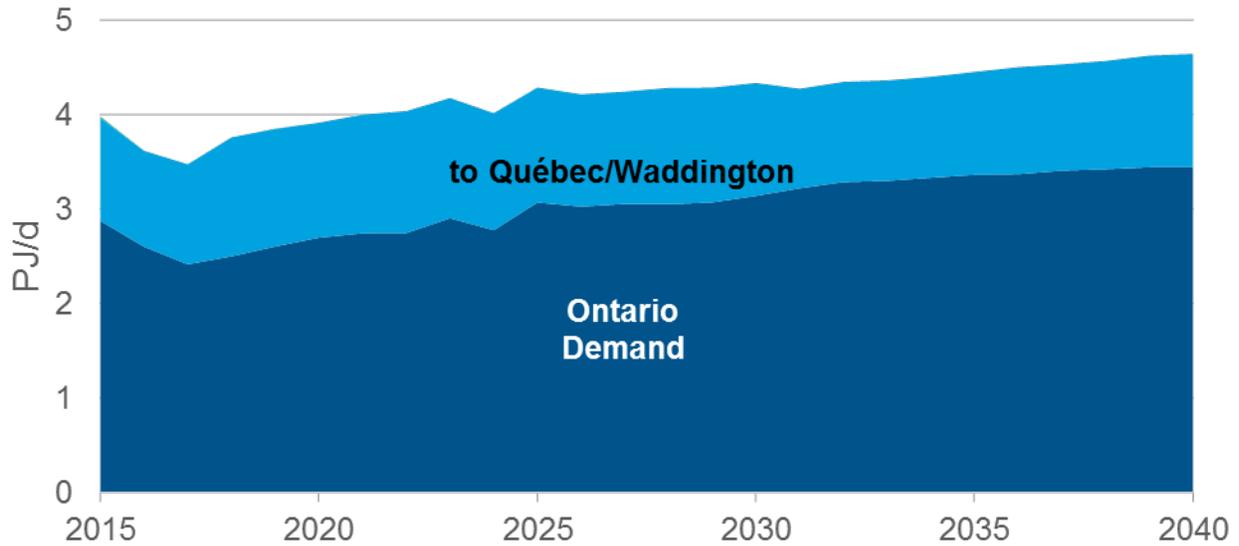
Annual deliveries into the U.S. Northeast from Ontario are likely to remain constant over time as Marcellus/Utica and western Canadian production flows through Ontario to the U.S. Northeast market. The Iroquois and PNGTS pipelines are expected to remain critical components of peak winter supply in the U.S. Northeast markets. These pipelines will continue to provide access to Ontario storage and to other sources of supply to U.S. Northeast markets. ICF is projecting peak winter flows on these pipelines to remain at or near capacity similar to the historical peak winter days shown in Figure 18 throughout the projection period.

Additionally, PNGTS is in the process of applying for and constructing two expansions – the Portland Xpress project and the Westbrook Xpress project – that will increase its approved import

capacity by 111 TJ/d by November 1, 2021. That incremental capacity will rely on deliveries from the TC Energy Mainline and Dawn.

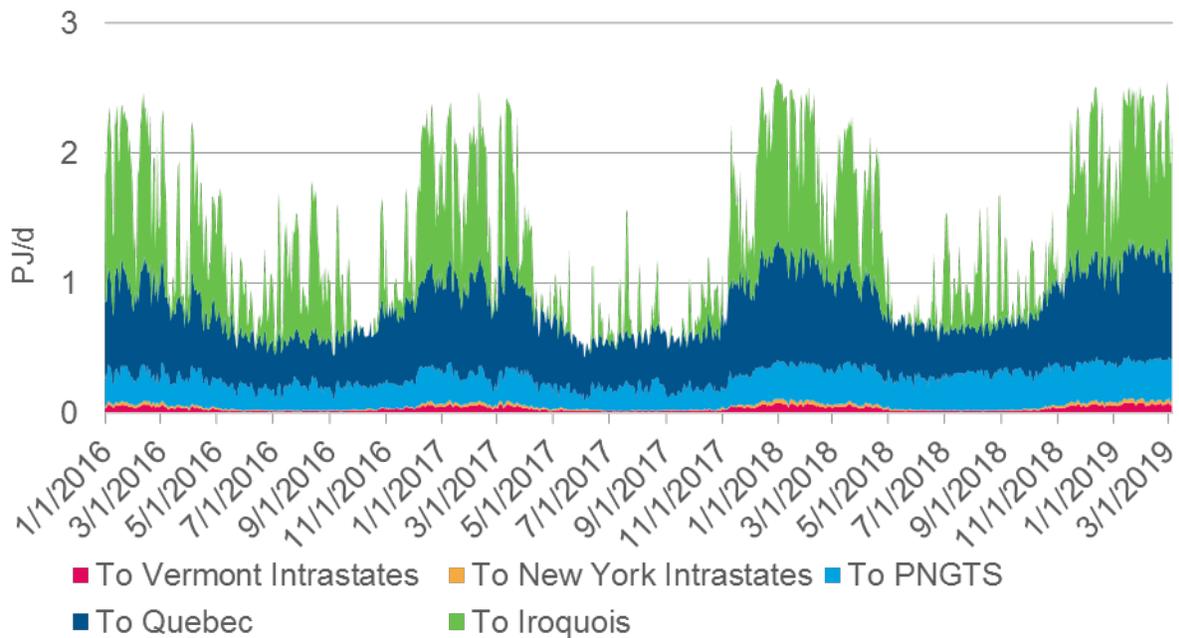
Overall, the total utilization of natural gas infrastructure in Ontario (demand plus exports as shown in Figure 12) is expected to increase over time between 2020 through 2040.

Figure 17 Historical and Projected Ontario Natural Gas Demand



Source: ICF GMM® June 2019

Figure 18 TC Energy Daily Flows East of the Ontario Triangle

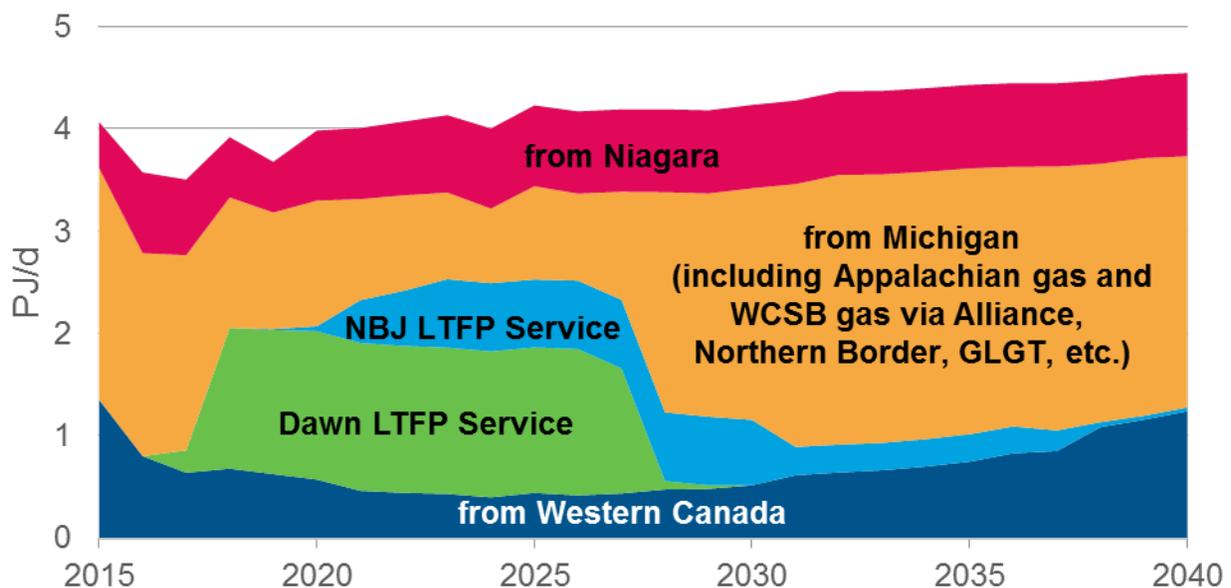


Source: OPIS PointLogic Energy, an "IHS Markit" Company

### 3.2 Natural Gas Supply

In 2018, Ontario received about half of its gas from western Canada via traditional TC Energy pipeline flows and the Dawn LTFP service and about half of its gas from the U.S. via Michigan and Niagara.<sup>8</sup> Gas flows from western Canada were supported by the introduction of the Dawn LTFP service and Dawn LTFP flows will remain roughly flat until that service expires. Gas flow into Ontario will also be bolstered by the North Bay Junction (NBJ) LTFP service beginning in late 2019. Gas imports from the U.S. through Michigan and Niagara into Ontario have increased since 2016 (see [bookmark14](#) Figure 19) and are projected to continue to grow throughout the 2020s until the expiration of TC Energy's LTFP services. After those services expire, and assuming the LTFP services are not re-contracted, flows from Michigan will increase dramatically although it should be noted that flow from Michigan includes gas sourced in the WCSB.

Figure 19 Historical and Projected Ontario Natural Gas Supply Sources



Source: ICF GMM® June 2019

According to ICF's estimates, the WCSB share of Ontario's supply sources transported on the TC Energy Mainline and on Great Lakes Gas Transmission (GLGT) has increased from 34 percent in 2015 to about 50 percent in 2018. It is expected to remain between one third and one half of Ontario's supply until the conclusion of the Dawn LTFP service.

The eventual decline in gas supply from the LTFP services will be offset by growth in natural gas supply via pipeline imports from Michigan and New York in the event that TC Energy does not recontract LTFP service to Dawn (or some other tariff structure). Much of this incremental

<sup>8</sup> ICF's analysis of TC Energy pipeline nominations concluded that supplies from the Dawn LTFP Service were sourced in the U.S. and western Canada. TC Energy has been meeting its delivery commitments via receipts on GLGT in the U.S. and via receipts from the TC Energy Mainline.

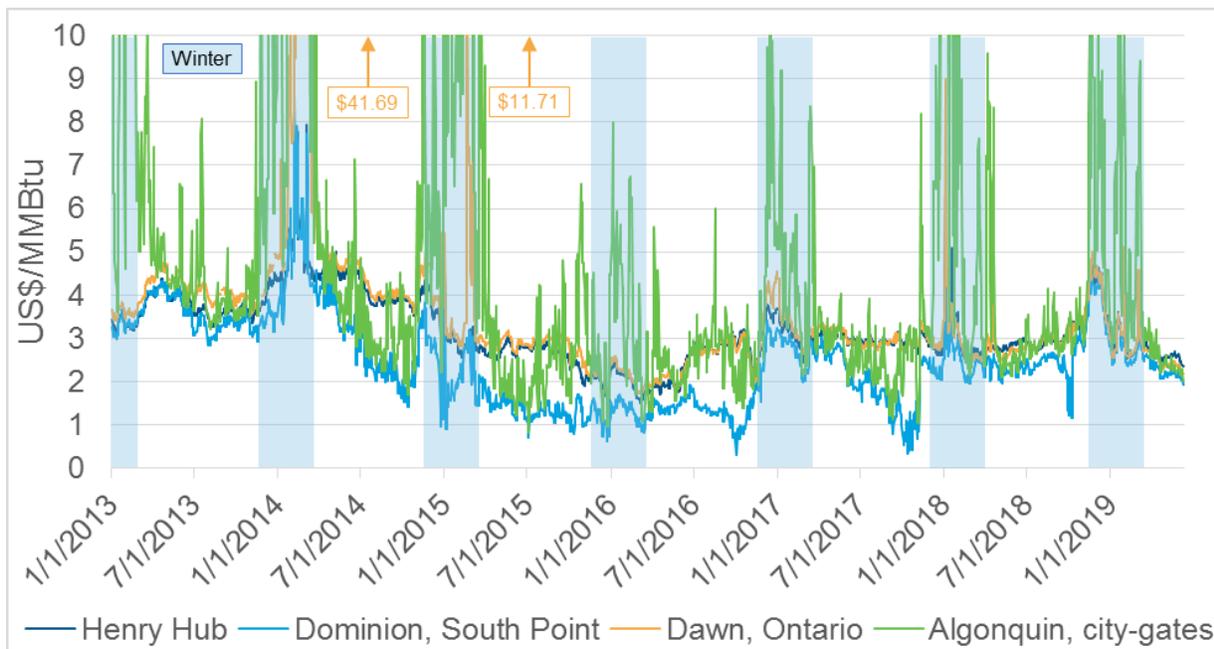
natural gas supply is expected to be from the Marcellus/Utica shale plays, which are predicted to comprise an increasing share of Ontario's gas supply through 2040.

The increase in gas supply from the Marcellus/Utica region can be met with existing pipeline capacity (including from expansions on the NEXUS and Rover pipelines) from Eastern Ohio to Michigan and Ontario, and through Niagara. Incremental pipeline capacity within Ontario from Dawn through Maple and potentially downstream of Maple will be required to fully utilize the expected increase in gas supply from this region.

### 3.3 Pipeline Capacity in Ontario

ICF is projecting continued growth in U.S. and WCSB supplies of natural gas into Ontario to meet Ontario, Québec, and Northeast U.S. demand. Construction of the NEXUS and Rover pipelines, as well as the implementation of the Dawn LTFP and North Bay Junction LTFP services will increase flows into and through Ontario.

Figure 20 Daily Gas Prices (1/1/2013 - 6/10/2019)



Source: Platts

In the past, eastern Canada experienced supply access issues leading to short term price spikes above \$10/MMBtu during peak winter periods. In 2013-2014, extreme winter weather conditions caused natural gas supply access issues, particularly in the U.S. Northeast, which led to historic highs in natural gas prices. In New England, natural gas prices exceeded US\$100/MMBtu on a small number of days while prices at Dawn were above US\$41/MMBtu for three days.<sup>9</sup> The price spread from Dawn to Eastern Ontario reached record highs. The

<sup>9</sup> Federal Energy Regulatory Commission (FERC). "Impacts on the Bulk Power System," Item No: A-4 (6), 16 January 2014. Available at: <http://www.ferc.gov/legal/staff-reports/2014/01-16-14-bulk-power.pdf>

magnitude and frequency of these price spikes have been decreasing over time at Dawn but not at other trading points in New York and New England, like Algonquin City-gates, however. These price events highlight the need for additional pipeline capacity into and through Ontario to ease the price spreads between Dawn and other hubs in the region.

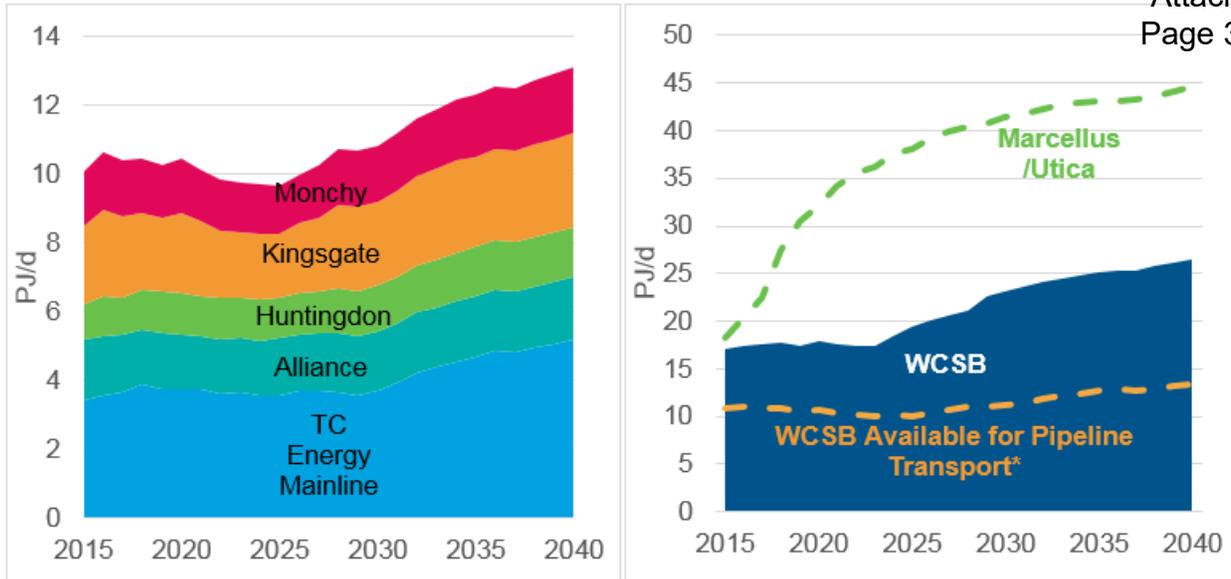
### 3.4 Changes in TC Energy's Role in Serving Ontario Markets

Prior to 2013, flows on the TC Energy Mainline were steadily declining. The decline in Mainline throughput volumes led to significant increases in pipeline tolls. In March 2013, the NEB fixed Mainline firm transportation (FT) toll rates for five years (through 2017) and provided TC Energy tools to maximize Mainline revenue through its RH-003-2011 decision. The firm transportation five-year fixed tolls provided shippers with medium-term certainty and allowed TC Energy to maintain competitiveness. Pricing flexibility for discretionary services provided TC Energy with the ability to encourage FT contracting to recover Mainline costs. The Mainline Settlement also facilitated the expansion of the TC Energy system in the eastern part of the Mainline. This allowed access to Dawn through expansion in the Parkway to Maple corridor for markets east of Parkway.

Since 2015, TC Energy Mainline annual average volumes remained between 2.6 PJ/d and 3.4 PJ/d. Conventional production of natural gas is declining in the WCSB basin but shale gas production has been increasing simultaneously. TC Energy has pipeline projects (like the North Montney Mainline project) that are designed to provide takeaway capacity for the shale supplies and support increased volumes in the future. To compete with Marcellus/Utica gas supplies, TC Energy introduced two long-term, fixed price toll services from Empress to Dawn and North Bay Junction. The Dawn LTFP service has about 1.5 PJ/d of contracts that will flow from Empress to Dawn between 2017-2019 and 2027-2029. The NBJ LTFP has about 0.6 PJ/d of contracts that will flow from Empress to North Bay Junction between 2019-2022 and 2030-2042. The NBJ LTFP service also includes a 268 TJ/d pipeline facilities expansion from North Bay Junction and Québec/East Hereford.<sup>10</sup>

<sup>10</sup> The facilities expansion is part of the New Capacity Open Season (NCOS) held by TC Energy and described in the NEB application: A97476 TransCanada PipeLines Limited - North Bay Junction Long Term Fixed Price Service Application.

Figure 21 WCSB Exports by Route and WCSB Production



Source: ICF GMM® June 2019

\* Excludes consumption in Alberta, British Columbia, and LNG exports

## 4 Evaluation of Future Utilization and Contracting of the Dawn to Parkway System

Future changes in the North American and Ontario natural gas markets are expected to have continued impact on the demand for Dawn Parkway System pipeline capacity.

Enbridge Gas has recently received requests for incremental Dawn Parkway System capacity of 185 TJ/d (effective November 2021 and November 2022) through an open season process. This was partially offset by capacity turn-back received that will be effective March 2021. As a result, Enbridge Gas is proposing facilities expansion on the Dawn Parkway System which will create approximately 84 TJ/d of incremental capacity between Dawn and Parkway for November 2021. The majority of the incremental capacity requests will meet Enbridge Gas in-franchise demand growth with a smaller portion of the incremental capacity requests received from U.S. Northeast utilities.

ICF evaluated the impacts of the likely changes in gas markets in order to determine the likely impact of the changes on the future utilization/contracting of the Dawn Parkway System, including the Dawn Hub and downstream markets and to determine the potential risks and opportunities for the Dawn Parkway System. As part of this process, ICF has considered factors that could result in turn-back/de-contracting or reduced needs for new capacity requests, as well as factors that could lead to significant growth in the demand for Dawn Parkway System capacity.

### 4.1 Changes in Natural Gas Markets Expected to Increase Demand for Enbridge Dawn to Parkway Assets

The growth in natural gas production in the U.S. Northeast is changing the natural gas supply balance throughout the U.S. Northeast and U.S. Midwest and into Ontario, leading to an increase in the demand for pipeline capacity on the Dawn Parkway System.

As Marcellus and Utica production increases, natural gas prices in Appalachia are expected to decline relative to other producing regions, resulting in significant incentives to flow gas from the U.S. Northeast into Ontario through Niagara and Dawn, and the U.S. Midwest as well as south into the U.S. Mid-Atlantic and U.S. Gulf Coast.

Gas demand growth in New York, New England, Québec, and the Canadian Maritimes provinces is also increasingly being met by gas that flows through Dawn, especially since offshore gas production in Nova Scotia ceased.

At the same time, growth in natural gas demand in western Canada for oil sands production, LNG exports, power generation and other uses is expected to exceed growth in natural gas production from the WCSB, resulting in higher natural gas prices in western Canada and lower pipeline exports.

#### 4.1.1 Growth in Marcellus/Utica Production

The Marcellus/Utica will continue to be the most dominant natural gas play in North America. Gas production from the area has grown from near nothing in early 2007 to an average of nearly

29.3 PJ/d in 2018, equaling roughly 33 percent of the total gas production in the U.S. ICF projects that Marcellus production will continue to grow at a robust rate of about 0.73 PJ/d per year, equating to an annual growth rate of roughly 2 percent between 2018 and 2040.

#### **4.1.2 Impact of Gas Market Changes on Natural Gas Prices and Basis**

The changes in location of natural gas supply and demand are projected by ICF to have a fundamental impact on the price relationships between the available sources of natural gas for Ontario and Québec consumers.

- The rapid growth in Marcellus/Utica supply has turned the U.S. Northeast into a major supply center, pushing down prices in the region, at market centers such as Dominion South Point, Columbia Appalachia, Clarington (Ohio) and other regional pricing points.
- The growth in LNG exports and Mexican exports from the Gulf of Mexico is changing the U.S. Gulf Coast into a demand region that purchases natural gas from the Marcellus and Utica plays. Flows from the U.S. Gulf Coast into the U.S. Midwest and U.S. Northeast have reversed and prices in Marcellus/Utica are now lower than prices in the U.S. Gulf Coast year-round. Prices in the U.S. Gulf Coast are expected to increase relative to prices in the U.S. Northeast producing regions but they will also be capped by increased production from the Mid-Continent, Haynesville, and the Permian.
- In the WCSB, the growth in natural gas demand for oil sands production and LNG exports, is expected to lead to increasing prices relative to U.S. Northeast supply regions.

The natural gas price change from these three producing regions is reflected in the basis from the producing regions to the Dawn Hub over time, as shown in Figure 15. The change in price relationship increases the attractiveness of natural gas supply purchased from the U.S. Northeast supply centers for consumers throughout the U.S. Northeast, U.S. Midwest and eastern Canada relative to the supply basins that these regions have historically relied upon. However, access to natural gas from the U.S. Northeast is dependent on the development of new pipeline infrastructure in each region. Much of the new infrastructure needed to move natural gas from the Marcellus and Utica plays to the Midwest and Ontario, for example, was provided by the NEXUS and Rover pipelines. Additional infrastructure is needed in Ontario, however, to meet growing demand in New York, New England, Québec, and the Canadian Maritimes.

## **4.2 Capacity Turn-back Risk**

The capacity on the Dawn Parkway System is currently contracted or used, to a high degree, by five major parties; TC Energy (formerly TransCanada), Energir (formerly Gaz Métro), eastern Canadian utilities, U.S. Northeast utilities, and Enbridge Gas to serve in-franchise customers. ICF expects these customers to continue to rely on storage and transportation at Dawn.

### **4.2.1 Capacity Turn-back Risk from Ontario and Québec LDCs**

ICF considers the potential for capacity turn-back on the Dawn Parkway System by Ontario and Québec LDCs to be low. The access to natural gas storage capacity at or near the Dawn Hub, where Enbridge Gas is a storage owner and operator, and where Energir contracts for

significant storage capacity limits the likelihood of capacity turn-back by the Ontario and Québec LDCs. Given the projected growth in demand in Ontario and constant demand in Québec, demand for Dawn Parkway System transportation capacity is expected to continue to increase over time.

In addition, the primary alternative to Dawn Parkway System transportation currently available is the long-haul capacity on TC Energy from Alberta. However, the short-haul services and the ability to enhance reliability by diversifying their natural gas supply portfolios, and the access to seasonal storage and peaking services gives supplies at Dawn an advantage. Given the continuing changes in the North American natural gas market structure, ICF anticipates that gas supply from the Marcellus and Utica plays will continue to become increasingly attractive to Ontario and Québec consumers due to lower price supplies from the U.S. Northeast relative to the WCSB and other supply basins.

However, the demand for short-haul capacity on the Dawn Parkway System will be limited by pipeline capacity constraints downstream of Parkway, and to a lesser degree, by the amount of pipeline infrastructure developed to bring Marcellus/Utica supplies into Ontario.

#### 4.2.2 Capacity Turn-back Risk from the U.S. Northeast Utilities

There is some risk of capacity turn-back from U.S. Northeast utilities and other smaller shippers given the growth in gas supply options available within the U.S. Northeast. However, the access to storage, the diversity of supply available at Dawn, and the difficulty in building new or expanded pipeline capacity into certain U.S. Northeast markets provide sound reasons for U.S. Northeast utilities to continue to hold capacity on the Dawn Parkway System.

In a 2018 analysis of integrated resource plans from utilities in New England, ICF found that, while declining, their future demand growth rate remains significant (results shown in Figure 22). The expected peak day demand is expected to grow even more quickly.

Figure 22 New England LDCs Demand Growth Forecast

	Demand (1,000 Dth per Day)				CAGR				
	2018	2023	2028	2033	2013-18	2018-23	2023-28	2028-33	2018-33
CT	1,143	1,274	1,359	1,409	3.8%	2.2%	1.3%	0.7%	1.4%
MA	2,657	2,842	2,963	3,033	2.4%	1.4%	0.8%	0.5%	0.9%
ME	317	352	381	400	3.5%	2.1%	1.6%	1.0%	1.6%
NH	226	256	274	285	3.6%	2.6%	1.4%	0.8%	1.6%
RI	371	395	411	413	3.8%	1.3%	0.8%	0.1%	0.7%
VT	70	75	79	81	2.1%	1.4%	0.9%	0.5%	0.9%
<b>Total Gas LDC Demand</b>	<b>4,783</b>	<b>5,195</b>	<b>5,467</b>	<b>5,622</b>	<b>2.9%</b>	<b>1.7%</b>	<b>1.0%</b>	<b>0.6%</b>	<b>1.1%</b>

Source: ICF

#### 1) New Pipeline Capacity from Marcellus/Utica to U.S Northeast Demand Centers

Over the past few years, New York and many states within New England have been denying pipeline expansion projects and greenfield pipelines the permits that they need to begin construction. ICF expects these regulatory hurdles to remain indefinitely. Because of this, Marcellus/Utica gas supplies for New York, New England and the Canadian Maritimes provinces will continue to flow through Dawn and Ontario before being re-imported at Waddington and East Hereford. Additionally, because of the regulatory costs due to permit

denials and delays, any new pipeline capacity into the U.S. Northeast is expected to be expensive, be difficult to site, and have unpredictable timing. As a result, while some of the eastern utilities currently holding capacity on the Dawn Parkway System might have the opportunity to replace this capacity with new pipeline capacity from the Marcellus/Utica, other existing customers will not. The costs of the new capacity are also expected to be high enough to ensure that new pipeline capacity is used to serve incremental load growth as opposed to displacing existing capacity options.

In addition, ICF does not expect sufficient growth in pipeline capacity to support growth in gas demand in the U.S. Northeast. As a result, the U.S. Northeast utilities will continue to be at risk of winter price volatility and price spikes caused by limitations on pipeline capacity in the U.S. Northeast downstream of the production regions. Holding pipeline capacity back to Dawn will continue to provide these utilities with access to alternative sources of supply, spreading basis risk over different markets.

## 2) Access to Dawn Storage

ICF expects storage at Dawn to continue to have significant value to the U.S. Northeast utilities. Building new storage capacity in the areas accessible to the U.S. Northeast utilities during peak winter periods is expensive and difficult to site. As natural gas demand in the Northeastern U.S. continues to increase, access to storage and to peaking services in Ontario will continue to be a valuable asset to these utilities.

## 3) Access to Gas Markets at Dawn

Dawn will continue to provide access to a large and liquid market upstream of the pipeline constraints into the U.S. Northeast, with a range of different supply options providing diversity of supply, adding value to the holding of pipeline capacity from Dawn. In addition, growth in natural gas demand in the Northeastern U.S. is expected to continue due to increased reliance on natural gas for power generation, as well as residential and commercial demand growth. As shown in Figure 23, Dawn and the Ontario Triangle are a key crossroads for gas being imported from Michigan and Niagara as well as gas being exported through Waddington, Québec, and East Hereford. Another indicator of Dawn's importance is its storage utilization; ICF calculates that between 2014 and 2019, turnover of gas storage (the average amount of gas withdrawn during the winter) at Dawn was 183 PJ (173 Bcf), or 61% of its capacity, while the U.S. and Canada average was 42% of capacity.

Given the above, ICF is of the view that while some of the capacity on the Dawn Parkway System held by the utilities and power generators in the U.S. Northeast could be at risk of turn-back, the risk is relatively limited. In addition, ICF would expect any capacity turned back to be readily marketable due to other market opportunities, including peak demand growth in eastern Canada.

Figure 23 2018 Ontario and Dawn Gas Flows (PJ/d)



Source: OPIS PointLogic Energy, an "IHS Markit "Company and U.S. EIA

#### 4) Lack of Access to Alternate Sources of Gas

The pipelines that serve New York and New England via New York are fully contracted and flow at capacity during peak periods. Recent attempts at expanding those pipelines have been met with local and regional resistance. Algonquin Gas Transmission's construction of a compressor station in Weymouth, MA, for example, has been halted indefinitely pending litigation in MA despite having federal approval.

Offshore production of natural gas at Sable Island and Deep Panuke has been shut down and the Alton Gas Storage project in Nova Scotia still isn't complete. Without either of those sources of gas supplies, utilities in the U.S. Northeast and Maritimes provinces have been left without options that were previously thought to be operational over the next couple of decades.

LNG imports at Everett, Canaport, and Northeast Gateway still play an important role in meeting gas demand in the U.S. Northeast and the Maritimes provinces but they are at risk of ceasing operations if their utilizations fall.

### 4.3 Assessing Potential Turn-back Risk

To assess the potential for capacity turn-back risk for the Dawn Parkway System, ICF examined the projected utilization of the Dawn Parkway System, and capacity and flows downstream and upstream on interconnecting pipeline systems. The analysis of natural gas markets and pipeline flows supports our conclusions related to pipeline capacity turn-back risk. ICF does not expect utilization of the Dawn Parkway System during peak periods to decline for any significant period

of time in the future.<sup>11</sup> The limiting factor in the ICF model on the utilization of the Dawn Parkway System is the pipeline capacity into Dawn and out of Parkway rather than the market demand for natural gas in Ontario and other eastern markets.

### 4.3.1 ICF June 2019 Base Case Scenario

The ICF June 2019 Base Case includes the proposed 2021 expansion in pipeline capacity on the Dawn Parkway System. It also includes the approved Dawn and NBJ LTFP services on the TC Energy Mainline as well as the additional pipeline capacity from the North Bay Junction to East Hereford.

In this case, the demand for flows from Dawn to Parkway and further up the TC Energy Mainline northeast of Maple continue to increase. Annual flows on the pipelines, and the pipeline basis between Dawn and points downstream of Parkway, continue to increase over the forecast period even though growth in peak winter flows are limited by the lack of incremental pipeline capacity.

The continuing growth in demand for Enbridge Gas' services over time provides significant confidence that the expansion of the Dawn Parkway System will not lead to stranded assets even if existing customers in the U.S. Northeast change their natural gas supply strategies to reduce their reliance on the Dawn Parkway System and Ontario/U.S. Midwest storage capacity.

## 4.4 Key Areas of Forecast Uncertainty

There are several areas of uncertainty in the ICF forecast that could impact natural gas infrastructure requirements and utilization in Ontario. In any long term forecast, there are a wide variety of uncertainties that could influence results and could either increase or decrease the projected utilization of the natural gas pipeline assets in Ontario. Two of these areas of uncertainty, environmental policy risk, and potential for east coast LNG exports, are reviewed below.

### 4.4.1 Environmental Policy Risk

Overall, recent changes in energy policy in the Northeast US related to climate change mitigation efforts may have a significant long term impact on natural gas demand in the U.S. Northeast, impacting the need for Ontario pipeline capacity. These changes include efforts in New York and other states and localities to promote a transition away from hydrocarbon fuels.

- 1) Power generation gas demand in ICF's forecast could be lower than expected. Climate change policy is likely to lead to growth in renewable generation, and potential declines in annual system throughput. ICF's forecast accounts for current and expected climate change policy changes, as well as commitments to develop new renewable capacity in New England and the U.S. Northeast. Based on our analysis of these issues, current peak gas demand levels are expected to persist. In the near to mid-term, climate

<sup>11</sup> It is possible that de-contracting by an Eastern Utility or other shipper could lead to a short term decline in flows, however ICF expects that any decline in flows would be offset by demand growth in Ontario and Québec, as well as growth in demand by other Eastern Utilities or other shippers.

change policies could even lead to growth in peak period power generation gas demand as a result of less switching to fuel oil, particularly if new pipeline capacity becomes available. One regional cause of lower power generation gas demand could be more hydro and/or renewables development in Québec in addition to additional electric transmission capacity from Québec. ICF does already assume significant transmission capabilities will be added between eastern Canada and New England; ICF Base Case assumes that the New England Clean Energy Connect (NECEC), a 1,200 MW transmission project between Québec and Maine, will be online by 2024.

Power generation gas demand could also be reduced if more offshore wind capacity is built than expected. Offshore wind projects have struggled to gain approval in recent years, but that could change in the future.

- 2) Climate change policies limiting the use of natural gas in new construction, limiting extension of the natural gas system, or encouraging the conversion of space heating to electricity could reduce overall natural gas load in the future relative to the ICF Forecast.
- 3) In the near term, environmental policy shifts leading to vehicle electrification could lead to greater electricity demand and, thus, increased natural gas demand for power generation.
- 4) Rapid and unexpected changes in energy storage technologies could reduce the long term need for pipeline capacity, by reducing the need for gas-fired power generation peaking capacity.

In the near- to mid-term, prior to 2030, ICF does not see these policy changes as a significant risk to the utilization of Ontario natural gas pipeline capacity. Challenges associated with integrating renewable power into the grid, as well as the costs associated with converting away from natural gas space heating demand will slow the impact of these policies on peak period natural gas demand. Given the current constraints on pipeline capacity in this region, any pipeline capacity made available into the region through implementation of climate change policies is likely to be repurposed to serve other natural gas demands in the region that are currently constrained.

The risk to the value of pipeline capacity into the Northeast, including pipeline assets in Ontario increases in the longer term, as the electric grid becomes better integrated with renewables, as power storage technologies improve and as climate change policies limiting the use of fossil fuels, including natural gas, have more time to be implemented and have larger impacts on demand. However, even under aggressive climate change policies, retirement of coal and nuclear power generation in the region is likely to lead to a continuing need for natural gas power generation, reducing the impact on natural gas pipeline utilization during peak periods through 2040.

#### **4.4.2 East Coast LNG**

East Coast LNG: Pieridae Energy recently announced that a final investment decision on whether to proceed with the Goldboro LNG export facility would be made in 2019 or early

2020.<sup>12</sup> This project would require about 0.9 PJ/d of natural gas delivered to Nova Scotia for the first phase of the project, which is projected to be on-line in 2023/2024. According to Pieridae, they have negotiated agreements with TC Energy and Enbridge for delivery of natural gas produced in Alberta to the facility via the TC Energy Mainline, PNGTS, and Maritimes and Northeast Pipeline. ICF does not include this facility in the ICF Base Case forecast due to significant concerns about pipeline capacity availability into New England. However, if the project is developed, the increase in pipeline flows through Ontario would significantly increase the value of existing natural gas infrastructure in Ontario.

<sup>12</sup> <https://pieridaeenergy.com/mod/file/UploadFile/aab3238922bcc25a6f606eb525ffdc56.pdf>

## 5 Conclusion

Based on our analysis, ICF concludes that the major natural gas market changes currently underway provide incentives over the long term for utilities and large gas customers in Ontario and Québec, and in the U.S. Northeast to continue to hold pipeline capacity in Ontario and to increase reliance on supplies from the Marcellus/Utica shale. The Dawn Parkway System provides economic access to these supplies at a liquid trading hub with significant pipeline and storage infrastructure to ensure operational flexibility.

ICF finds that the proposed capacity expansion on the Dawn Parkway System is supported by market trends and the risk of future capacity turn-back is limited for the following reasons:

- Production out of the Marcellus and Utica shale plays is projected to grow to more than 42 PJ/d by 2030, and 45 PJ/d by 2040. The most likely markets for this gas include the U.S. Southeast, as well as the U.S. Midwest, Ontario, and the U.S. Northeast via Canada. Marcellus and Utica gas is expected to displace natural gas flows from the Gulf Coast into the Midcontinent and Southeast.
  - The lack of new pipeline development into the U.S. Northeast limits growth in direct access to these markets for Marcellus/Utica gas.
  - The growth in Permian associated gas production as well as the Haynesville and Eagle Ford plays limits the potential for Marcellus/Utica gas to serve growth in natural gas load in the Gulf Coast region needed to meet industrial and power generation load growth or LNG export demand in the region.
- Increasing demand, and especially peak demand, in eastern Canada and the U.S. Northeast, coupled with limitations on pipeline development in New York and New England, makes Dawn an important transportation and storage location for Marcellus/Utica gas destined for those markets.
- Total WCSB production is expected to increase slowly over time as growth in shale gas production from the emerging Montney and Horn River shale gas plays offset declining conventional production from the WCSB. However, significant LNG export capacity is expected to be constructed on the British Columbia coast, which, along with oil sands development in Alberta, will be competing for gas supplies from western Canada, and holding down the amount of WCSB gas production available in eastern markets;
- Climate change policy in the Northeastern US, Ontario and Québec is expected to hold down growth in annual natural gas demand. However, the lack of new pipeline development in New York and New England is expected to ensure that existing pipeline capacity will continue to be highly valued and utilized, particularly during peak periods, through 2040.
- Net utilization of the natural gas infrastructure in Ontario (Ontario demand plus exports) is expected to increase between 2020 and 2040 on both an annual and a peak month basis, leading to continued utilization of the pipeline and storage assets in Ontario, including the Dawn to Parkway System, and the proposed Dawn Parkway System capacity expansion project should remain highly utilized in the future.

Based on our analysis, ICF concludes that the major natural gas market changes currently underway provide incentives for utilities in Ontario and Québec, and the U.S. Northeast to continue to rely on natural gas pipeline capacity in Ontario for the foreseeable future. The new facilities proposed by Enbridge respond to market needs, and should be expected to remain fully contracted.

The changes in natural gas markets are shifting the economics of natural gas supply for Ontario consumers, and for consumers that rely on Ontario pipeline capacity. Natural gas prices at Marcellus and Utica supply centers are expected to continue to be competitive relative to natural gas prices in the WCSB and remain well-below the prices in the U.S. Gulf Coast, and other North American supply centers, creating significant economic incentives to develop the infrastructure needed to access this source of supply.

While there is always some risk that natural gas markets will change in unanticipated directions leading to decontracting, in the near- to mid-term, ICF expects this risk to be limited. The risk could increase in the longer term due to uncertainty related to environmental regulations. However, the long-term downside environmental policy risk is partially or fully offset by the potential impacts of additional LNG exports from eastern Canada and other demand growth.

In addition, the challenges associated with building new pipeline capacity into the Northeastern U.S. market centers provides assurances that available pipeline capacity into the region will be fully contracted. Any potential decontracting of pipeline capacity due to environmental reasons or other reasons should be expected to provide opportunities for customers that need additional pipeline capacity to contract for the released capacity. It is unlikely that any pipeline capacity capable of serving these markets would remain unutilized.

1 **NEED FOR FACILITIES**

2 The purpose of this section of evidence is to provide an overview of the incremental  
3 demand for Dawn Parkway System transportation capacity commencing as early as  
4 November 1, 2021 and Enbridge Gas's longer-term expectations for the Dawn Parkway  
5 System.

6  
7 This Tab of evidence is organized as follows:

- 8 1. Dawn Parkway System Open Season
- 9 2. Dawn Parkway System Reverse Open Season
- 10 3. Binding Contracts for Ex-franchise Capacity
- 11 4. Enbridge Gas Capacity
- 12 5. Related Projects
- 13 6. Longer-Term Expectations for the Dawn Parkway System

14  
15 Growing demand for natural gas in Ontario (from customers in the EGD rate zone and  
16 Union rate zones) and a desire by U.S. Northeast customers to increase access to the  
17 liquid market, diverse natural gas supplies and strategic storage facilities at the Dawn  
18 Hub (ex-franchise customer demand), is driving the need to construct incremental  
19 facilities on the Dawn Parkway System (the proposed Project) for November 1, 2021.

20 To determine market interest in Dawn Parkway System transportation capacity the  
21 Open Season was conducted from August to November 2018 and awarded  
22 approximately 185 TJ/d of capacity beginning November 1, 2021. As detailed at

1 Exhibit A, Tab 7, this incremental demand is forecast to cause capacity shortfalls on the  
2 Dawn Parkway System as early as the winter of 2021/2022, necessitating expansion of  
3 the Dawn Parkway System. As set out in its 2019 ICF Report, ICF's analysis indicates  
4 that the proposed Project responds to market needs and should be expected to be  
5 heavily utilized with very limited de-contracting risk. Enbridge Gas supports the  
6 conclusions of ICF in this regard and has determined that the proposed Project is the  
7 most prudent and effective means of serving the incremental demand. Detailed  
8 assessment of Dawn Parkway System capacity and facility and non-facility alternatives  
9 can be found at Exhibit A, Tab 7.

10

### 11 **1. Dawn Parkway System Open Season**

12 On August 29, 2018, the launch of an Open Season for firm transportation capacity on  
13 the Dawn Parkway System commencing as early as November 1, 2021 was  
14 announced. Notification of the Open Season was as broad as possible to provide all  
15 market participants the opportunity to bid, including:

- 16 • direct e-mails to over 730 current and potential customers;
- 17 • a press release; and
- 18 • posting of the Open Season notice and information package online.

19

20 The Open Season information package and process followed the OEB's Standards for  
21 Transportation Open Seasons under the Storage and Transportation Access Rule  
22 ("STAR") and included:

- 1 • a description of the transportation offering;
- 2 • a description of the Open Season process;
- 3 • a link to the M12 Rate Schedule, General Term and Conditions and M12
- 4 Standard Contract; and
- 5 • a transportation bid form.

6 The Open Season closed on November 16, 2018. The Press Release and Open  
 7 Season package are attached at Exhibit A, Tab 6, Schedule 1.<sup>1</sup> The Open Season  
 8 offered up to 350,000 GJ/d of M12 or M12X Dawn Parkway System transportation  
 9 capacity commencing November 1, 2021 and up to 250,000 GJ/d of M12 or M12X  
 10 Dawn Parkway System transportation capacity commencing November 1, 2022 as  
 11 summarized in Table 6-1.<sup>2</sup>

12 **Table 6-1**  
 13 **Open Season Capacity Offered**

<b>Dawn Parkway System Transportation Services Offered</b>	<b>Start Date</b>	<b>Capacity (GJ/d)</b>
M12 ( <i>Dawn to Parkway/Kirkwall, Kirkwall to Parkway</i> )	01-Nov-21	350,000
	01-Nov-22	250,000
M12X ( <i>Dawn to Parkway/Parkway to Dawn</i> )	01-Nov-21	350,000
	01-Nov-22	250,000

14

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<sup>1</sup> The original Open Season press release and package set out October 15, 2018 as the closing date for the Open Season. At the request of its customers and in alignment with a parallel TC Energy Open Season the closing date of the Open Season was extended to November 16, 2018.

<sup>2</sup> Easterly Dawn Parkway System transportation services include M12 Dawn to Parkway, M12 Dawn to Kirkwall, M12 Kirkwall to Parkway and the flexible M12X.

1 Capacity requests that met the Open Season requirements were awarded as bid. In  
 2 total, 184,671 GJ/d of incremental Dawn to Parkway transportation capacity was  
 3 awarded, as detailed in Table 6-2.

4 **Table 6-2**  
 5

<u>Shipper</u>	<u>Start Date</u>	<u>Path</u>	<u>Allocated Quantity</u> (GJ/d)
EGD Rate Zone	01-Nov-21	Dawn to Parkway	125,000 <sup>3</sup>
Bangor Natural Gas Company	01-Nov-22	Dawn to Parkway	8,796
Northern Utilities, Inc	01-Nov-22	Dawn to Parkway	10,875
Union Rate Zones	01-Nov-21	Dawn to Parkway	40,000
<b>Total</b>			<b>184,671</b>

6  
 7 Consistent with other recent applications to expand Dawn Parkway System facilities and  
 8 associated open seasons, including the 2017 Dawn Parkway Project and the Dawn  
 9 Parkway 2016 Expansion Project, EGD bid and was awarded a significant portion of the  
 10 capacity offered to the market as an ex-franchise shipper.<sup>4</sup> Similarly, capacity was  
 11 allocated to serve the needs of in-franchise customers in the Union rate zones.

12  
 13 Based on available Dawn Parkway System capacity, it was determined that incremental  
 14 facilities are required to serve the long-term transportation capacity allocated in the  
 15 Open Season.

16

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<sup>3</sup> Of the total 125,000 GJ/d bid received from EGD in the Open Season for a November 1, 2021 start date, 25,000 GJ/d was subject to shift to a November 1, 2022 start date depending on the outcome of TC Energy's open season on TC Energy's Mainline for Parkway takeaway capacity. At this time, TC Energy has informed Enbridge Gas that a November 1, 2021 start date for this capacity is possible.

<sup>4</sup> EB-2015-0200, Exhibit A, Tab 6, p. 4; EB-2014-0261, Exhibit A, Tab 7, p. 5.

1 As set out at Exhibit A, Tab 7, there is insufficient Dawn Parkway System capacity to  
2 satisfy the demand awarded in the Open Season and summarized in Table 6-2 without  
3 incremental facilities. Specifically, Enbridge Gas is forecast to have capacity shortfalls  
4 on the Dawn Parkway System of 120,775 GJ/d for the Winter 2021/2022 and of  
5 164,797 GJ/d for the Winter 2022/2023.

6

## 7 **2. Dawn Parkway System Reverse Open Season**

8 Under the OEB's STAR,<sup>5</sup> Enbridge Gas is required to conduct a Reverse Open Season  
9 following any open season for new transmission capacity to support Dawn Parkway  
10 System efficiency and to ensure that expansion of the Dawn Parkway System is  
11 rational. Accordingly, on November 26, 2018, all firm Dawn to Parkway, Dawn to  
12 Kirkwall and Kirkwall to Parkway transportation contract holders on the Dawn Parkway  
13 System received a reverse open season notice via email. The Reverse Open Season  
14 was conducted from November 26, 2018 through November 30, 2018. The Reverse  
15 Open Season notice was also posted online. A copy of the Reverse Open Season  
16 notice is provided in Exhibit A, Tab 6, Schedule 2. There were no requests to turn back  
17 transportation capacity by Dawn to Parkway shippers.

18

## 19 **3. Binding Contracts for Ex-franchise Capacity**

20 The Open Season package requested that transportation contracts (M12 or M12X) be  
21 executed by bidders, including associated Precedent Agreements and Financial

---

<sup>5</sup> STAR, Section 2.2.1 (iii).

1 Backstopping Agreements (together referred to as “Transportation Contracts”).  
2 Enbridge Gas executed Transportation Contracts with Bangor Natural Gas Company  
3 and Northern Utilities Inc. (both U.S. Northeast utilities) on February 28, 2019. These  
4 contracts include conditions precedent for the benefit of shippers that must be waived  
5 by November 30, 2019. These conditions precedent include execution of transportation  
6 contracts and/or precedent agreements with third party transportation providers to move  
7 gas upstream and/or downstream of the Dawn Parkway System to relevant  
8 franchise/market areas and receipt of applicable regulatory approvals to enter into  
9 contracts with Enbridge Gas and third-party transportation providers.

10

11 The expansion of pipeline facilities within Ontario remains critical for U.S. Northeast  
12 consumers to access:

- 13 • liquidity and diversity of competitively priced supply at the Dawn Hub;
- 14 • flexible storage services available at the Dawn Hub; and
- 15 • diversity and security of new and cost competitive supply at the Dawn Hub.

16

### 17 **Bangor Natural Gas Company Capacity**

18 Bangor Natural Gas Company was awarded 8,796 GJ/d of firm Dawn to Parkway M12  
19 transportation capacity commencing service November 1, 2022 and executed  
20 associated Transportation Contracts on February 28, 2019.<sup>6</sup> As discussed above,

---

<sup>6</sup> Bangor Natural Gas Company is expected to waive or satisfy all shipper conditions precedent associated with its executed Transportation Contracts on or before November 30, 2019.

1 Bangor Natural Gas Company has conditions precedent outstanding on its  
2 Transportation Contracts related to upstream/downstream transportation and regulatory  
3 approvals. Bangor Natural Gas Company requires incremental transportation capacity  
4 on the TC Energy Mainline, PNGTS and Maritimes & Northeast Transmission System  
5 downstream of Parkway for natural gas supply to reach its intended franchise/market  
6 areas.

7

#### 8 **Northern Utilities, Inc Capacity**

9 Northern Utilities Inc. was awarded 10,875 GJ/d of firm Dawn to Parkway M12  
10 transportation capacity commencing service November 1, 2022 and executed  
11 associated Transportation Contracts on February 28, 2019.<sup>7</sup> As discussed above,  
12 Northern Utilities Inc. has conditions precedent outstanding on its Transportation  
13 Contracts related to upstream/downstream transportation and regulatory approvals.  
14 Northern Utilities Inc. requires incremental transportation capacity on the TC Energy  
15 Mainline and PNGTS downstream of Parkway for gas supply to reach its intended  
16 franchise/market areas.

17

#### 18 **4. Enbridge Gas Capacity**

19 On May 1, 2019, in accordance with the OEB's direction as part of the Framework for  
20 the Assessment of Distributor Gas Supply Plans (EB-2017-0129), Enbridge Gas filed its

---

<sup>7</sup> Northern Utilities Inc. is expected to waive or satisfy all shipper conditions precedent associated with its executed Transportation Contracts on or before November 30, 2019.

1 first comprehensive 5 Year Gas Supply Plan (EB-2019-0137). The Enbridge Gas 5 Year  
2 Gas Supply Plan included transportation contracting analysis for all rate zones (EGD  
3 rate zone, Union North rate zone and Union South rate zone) as well as a listing of the  
4 benefits and rationale for all Enbridge Gas Dawn Parkway System requirements.

5  
6 Consistent with the analyses provided in the 5 Year Gas Supply Plan and consistent  
7 with the bids/interest submitted in the Open Season, Enbridge Gas has the following  
8 transportation requirements on the Dawn Parkway System effective November 1, 2021:

- 9 • EGD Rate Zone - 125,000 GJ/d of new capacity from Dawn to Parkway on the  
10 Dawn Parkway System, and corresponding new capacity on the TC Energy  
11 Mainline of 100,000 GJ/d from Parkway to Enbridge CDA starting November 1,  
12 2021 and 25,000 GJ/d from Parkway to Enbridge EDA starting November 1,  
13 2022.<sup>8</sup>
- 14 • Union Rate Zone - 40,000 GJ/d of new capacity on the Dawn Parkway System to  
15 serve Union South rate zone and Union North rate zone (North East) customers  
16 starting November 1, 2021.<sup>9</sup>

---

<sup>8</sup> As detailed at Exhibit A, Tab 7, Table 7-1, EGD bid for 125,000 GJ/d of Dawn to Parkway capacity starting November 2021. Of the total 125,000 GJ/d bid received from EGD in the Open Season for a November 1, 2021 start date, 25,000 GJ/d was subject to shift to a November 1, 2022 start date depending on the outcome of TC Energy's open season on TC Energy's Mainline for Parkway takeaway capacity. At this time, TC Energy has informed Enbridge Gas that a November 1, 2021 start date for this capacity is possible.

<sup>9</sup> As detailed at Exhibit A, Tab 7, Table 7-1, Union bid for 40,000 GJ/d of Dawn to Parkway capacity starting November 2021. This bid is composed of: 2020 demand of 19,953 GJ/d for Union South rate zone; 2021 demand of 16,366 GJ/d for the Union South rate zone; and 2021 demand of 2,990 GJ/d for the Union North rate zone. Enbridge Gas will manage its projected 2020 design day demand shortfall of 19,953 GJ/d until incremental Dawn Parkway System capacity comes into service in November 2021 as a result of the proposed Project.

**EGD Rate Zone Capacity**

Factors that influence Enbridge Gas's assessment of various service and transmission options may include: (i) supply liquidity; (ii) delivery performance; (iii) firmness of service; (iv) relative cost; (v) availability of intra-day nomination windows; (vi) contract duration; and (vii) renewal rights. As set out in Enbridge Gas's 5 Year Gas Supply Plan for the EGD rate zone, shortfalls in the CDA and EDA are forecasted to increase to 108 TJ/d and 22 TJ/d (approximately 108,000 GJ/d and 22,000 GJ/d), respectively, of total design day supply by 2021 and to continue to increase in subsequent years. Tables 6-3 and 6-4 below, taken from the Enbridge Gas 5 Year Gas Supply Plan, demonstrate this growth trend.<sup>10</sup>

**Table 6-3**  
**CDA Design Day Supply/Demand Balance**

Line No.	Particulars (TJ)	2020	2021	2022	2023	2024
	<b><u>Design Day Demand</u></b>					
1	Gross Design Day Demand	3,414	3,426	3,439	3,451	3,463
2	Curtaliment	(79)	(79)	(79)	(79)	(79)
3	Net CDA Design Day Demand	3,335	3,347	3,360	3,372	3,384
	<b><u>CDA Design Day Supply Assets</u></b>					
4	In-Franchise Supply	88	88	88	88	88
5	Third-Party Services	40	-	-	-	-
6	TCPL Long Haul	5	5	5	5	5
7	TCPL Short Haul	668	668	768	768	768
8	TCPL STS	284	284	284	284	284
9	EGI D-P	2,194	2,194	2,194	2,194	2,194
10	CDA Design Day Supply Assets	3,279	3,239	3,339	3,339	3,339
11	<b>CDA Design Day Supply Assets Surplus/(Shortfall)</b>	<b>(56)</b>	<b>(108)</b>	<b>(21)</b>	<b>(33)</b>	<b>(45)</b>
12	<i>Shortfall % of Net Design Day Demand</i>	<i>1.7%</i>	<i>3.2%</i>	<i>0.6%</i>	<i>1.0%</i>	<i>1.3%</i>

<sup>10</sup> The forecast presented incorporates the capacity bids being discussed starting in 2022 (see Table 6-3 line 7 and Table 6-4 line 6).

1  
2  
3

**Table 6-4**  
**EDA Design Day Supply/Demand Balance**

Line No.	Particulars (TJ)	2020	2021	2022	2023	2024
	<b>EDA Design Day Demand</b>					
1	Gross Design Day Demand	723	730	738	745	752
2	Curtaliment	(30)	(30)	(30)	(30)	(30)
3	Net EDA Design Day Demand	693	700	707	715	722
	<b>EDA Design Day Supply Assets</b>					
4	In-Franchise Supply	0	0	0	0	0
5	TCPL Long Haul	260	260	260	260	260
6	TCPL Short Haul	337	337	362	362	362
7	TCPL STS	81	81	81	81	81
8	EDA Design Day Supply Assets	678	678	703	703	703
9	<b>EDA Design Day Supply Assets Surplus/(Shortfall)</b>	<b>(15)</b>	<b>(22)</b>	<b>(5)</b>	<b>(12)</b>	<b>(19)</b>
10	Shortfall % of Net Design Day Demand	2.1%	3.2%	0.6%	1.7%	2.6%

4

5 To address forecasted growth in both design day demand and design day shortfall,  
 6 EGD submitted the aforementioned bid for firm transportation service (125 TJ/d) on the  
 7 Dawn Parkway System in the Open Season.<sup>11</sup> Consistent with similar such bids into  
 8 previous open seasons and capacity contracted on the Dawn Parkway System in the  
 9 past,<sup>12</sup> the awarded pipeline capacity:

- 10 • increases the reliability of the EGD rate zone design day plan by reducing
- 11 reliance on market-based solutions;
- 12 • is the lowest cost firm transportation path available that connects to a liquid
- 13 trading hub; and
- 14 • provides flexibility of service attributes associated with firm transportation that are
- 15 not available with market-based services.

<sup>11</sup> Although the shortfall identified in Table 6-3 and 6-4 amounts to 130 TJ/d, EGD bid 125 TJ/d to allow for some variability.

<sup>12</sup> EB-2015-0200, Exhibit A, Tab 6, p. 4; EB-2014-0261, Exhibit A, Tab 7, p. 5.

1 Consistent with the evaluation found in the 5 Year Gas Supply Plan,<sup>13</sup> Tables 6-5 and  
 2 6-6 provide evaluation matrices for the Enbridge CDA and Enbridge EDA, respectively,  
 3 demonstrating the assessment of the Open Season (identified as Short Haul-  
 4 Parkway).<sup>14</sup>

5 **Table 6-5**  
 6 **CDA Dawn Parkway System Open Season Evaluation Matrix**  
 7

Option	Reliability	Flexibility	Diversity	Costs (\$M/yr)
Peaking	☹	🔴	🟢	3.4
Long Haul	🟢	🟢	☹	41.4
Short Haul-Parkway	🟢	☹	☹	12.7

8  
 9  
 10 **Table 6-6**  
 11 **EDA Dawn Parkway System Open Season Evaluation Matrix**  
 12

Option	Reliability	Flexibility	Diversity	Costs (\$M/yr)
Peaking	☹	🔴	🟢	0.7
Long Haul	🟢	🟢	☹	10.9
Short Haul-Parkway	🟢	☹	☹	5.8

13  
 14 Union subsequently awarded 125,000 GJ/d of firm Dawn to Parkway M12 transportation  
 15 capacity commencing service as early as November 1, 2021 to EGD. This incremental  
 16 firm transportation capacity is in addition to approximately 2,792,173 GJ/d of firm M12  
 17 Dawn to Parkway transportation capacity, 200,000 GJ/d of firm M12X transportation  
 18 capacity and 67,929 GJ/d of firm Dawn to Kirkwall transportation capacity contracted for  
 19 the EGD rate zone on the Dawn Parkway System.

20  
 21  
<sup>13</sup> EB-2019-0137, Section 5.3, pp. 40-42.

<sup>14</sup> EB-2019-0137, Appendix D, p.1.

1 **Union Rate Zones Capacity**

2 As discussed in the Enbridge Gas 5 Year Gas Supply Plan, Union's 2018/2019 Gas  
3 Supply Plan identified design day demand growth in Union North East (approximately  
4 3,000 GJ/d) and Union South (approximately 37,000 GJ/d) that required an additional  
5 40,000 GJ/d of Dawn Parkway System capacity. Tables 6-7 and 6-8 demonstrate this  
6 growth trend in Union North and Union South rate zone design day demands.

7  
8 Table 6-7 forecasts an increase in Union North rate zone (North East) design day  
9 demand of 5 TJ/d from 2019/2020 to 2021/2022 (see Table 6-7, line 1). Enbridge Gas  
10 will serve a portion (3 TJ/d) of this forecasted incremental demand through a  
11 combination of increased Dawn Parkway System capacity and excess TC Energy  
12 Storage Transportation Service ("STS") withdrawal rights flowing from Parkway to the  
13 Union North rate zone (North East).

14

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**Table 6-7**  
**Union North Design Day Excess/Shortfall**

Line No.	Particulars (TJ/day)	North West					North East				
		2019/20	2020/21	2021/22	2022/23	2023/24	2019/20	2020/21	2021/22	2022/23	2023/24
<u>Demand</u>											
1	Union North*	130	129	129	128	128	403	400	408	408	411
<u>Supply</u>											
2	Empress	78	78	78	78	78	4	4	4	4	4
3	Dawn	-	-	-	-	-	67	67	67	67	67
4	Nexus	-	-	-	-	-	53	53	53	53	53
5	North Dawn T-Service	-	-	-	-	-	33	33	33	33	33
6	Redelivery from Storage										
7	From Parkway										
8	STS Withdrawals	31	31	31	31	31	81	82	88	88	88
9	STS Pooled Withdrawals	-	-	-	-	-	21	17	16	15	17
10	Short-haul Firm	-	-	-	-	-	119	119	119	119	119
11	Enhanced Market Balancing	-	-	-	-	-	25	25	25	25	25
12	From Dawn										
13	STS Withdrawals	19	19	18	18	18	-	-	-	-	-
14	Total Supply	128	128	128	127	127	403	400	406	405	406
15	Excess(Shortfall)	-1	-1	-1	-1	-1	0	0	-3	-4	-5

\* includes Sales Service, Bundled DP, North Dawn T-Service

Table 6-8 forecasts an increase in Union South rate zone design day demand of 157 TJ/d from 2019/2020 to 2021/2022 (see Table 6-8, line 1). Union South rate zone demands are met via a variety of transmission systems including the Dawn Parkway System, the Panhandle System and the Sarnia Industrial Line. The portion of forecasted demand increase that relates directly to Dawn Parkway System capacity, and which supported the Open Season capacity awarded to Union South rate zone customers is approximately 37 TJ/d as detailed at Exhibit A, Tab 7.

**Table 6-8**  
**Union South Design Day Position**

Line No.	Particulars (TJ/day)	2019/20	2020/21	2021/22	2022/23	2023/24
<u>Demand</u>						
1	Union South*	3,108	3,139	3,265	3,314	3,344
<u>Supply</u>						
2	Empress	3	3	3	3	3
3	Nexus	106	106	106	106	106
4	Non-obligated (e.g. Power Plants)	270	270	270	270	270
5	Ontario Dawn	548	549	641	643	645
6	Ontario Parkway	225	225	222	220	226
7	Panhandle	60	60	60	60	60
8	TCPL Niagara	21	21	21	21	21
9	Vector	84	84	84	84	84
10	Redelivery from Storage	1,790	1,821	1,858	1,907	1,928
11	Total Supply	3,108	3,139	3,265	3,314	3,344
12	Excess(Shortfall)	-	-	-	-	-

\* includes Sales Service, Bundled DP, T-Service

Consistent with similar Dawn Parkway System capacity allocations to the Union rate zones in the past,<sup>15</sup> the allocated pipeline capacity:

- is a highly reliable means of transporting natural gas supply from Dawn to points east of Dawn to meet in-franchise requirements;
- is the lowest cost firm transportation path available that connects to a liquid trading hub; and
- supports the acquisition of supply from upstream markets, maintaining diversity of contract terms and supply basins.

<sup>15</sup> EB-2015-0200, Exhibit A, Tab 6, p. 4; EB-2014-0261, Exhibit A, Tab 7, p. 5.

1 Union subsequently allocated 40,000 GJ/d of firm Dawn to Parkway transportation  
2 capacity to meet the forecasted design day demand of customers in the Union North  
3 rate zone and Union South rate zone as early as November 1, 2021.<sup>16</sup> This incremental  
4 firm transportation capacity is in addition to approximately 2,354,652 GJ/d of firm Dawn  
5 to Parkway transportation capacity previously allocated to in-franchise customers in the  
6 Union rate zones.

7

## 8 **5. Related Projects**

### 9 **Upstream Projects**

10 The proposed expansion of the Dawn Parkway System is not dependent upon any  
11 upstream pipeline projects that connect to the Dawn Hub. Therefore, the in-service  
12 date of the proposed 2021 Dawn Parkway System facilities is not impacted by upstream  
13 pipeline projects.

14

15 The Dawn Hub is one of the most physically traded hubs in North America. As  
16 described at Exhibit A, Tab 4, the Dawn Hub is connected to most of North America's  
17 major supply basins. Previous expansions of the Dawn Parkway System in 2006 to

---

<sup>16</sup> Enbridge Gas requires 20,000 GJ/d commencing November 1, 2021 and an additional 20,000 GJ/d commencing November 1, 2022 for the Union rate zones. These amounts are roughly equivalent to and are consistent with the rates of in-franchise demand growth historically experienced by Enbridge Gas in the Union rate zones.

1 2008 were not dependent upon the completion of upstream supply projects nor were the  
2 OEB-approved Dawn Parkway System expansions in 2015, 2016 and 2017.<sup>17</sup>

3  
4 While the proposed Project is not dependent upon upstream pipeline projects being  
5 constructed, the Dawn Parkway System demand growth experienced in 2015 through  
6 2021 helps attract new natural gas supply from the Appalachian Basin (Marcellus and  
7 Utica) and supply from the WCSB to the Dawn Hub. Increasing supply into the Dawn  
8 Hub, coupled with the increased transactional activity, will increase liquidity and  
9 diversity at the Dawn Hub, benefiting all shippers and consumers in Ontario, Québec,  
10 the Maritimes and the U.S. Northeast that purchase supply at the Dawn Hub.<sup>18</sup>

11

## 12 **Downstream Projects**

13 The proposed expansion of the Dawn Parkway System is partially dependent upon  
14 expansion of TC Energy's Mainline for takeaway capacity from Parkway beginning  
15 November 1, 2021 and upon expansion of PNGTS beginning November 1, 2022.

16

17 Accordingly, as set out in Tables 6-9 and 6-10 EGD, Bangor Natural Gas Company and  
18 Northern Utilities Inc. bid into TC Energy's open season for capacity on TC Energy's  
19 Mainline in alignment with their respective bids into the Open Season. Bangor Natural  
20 Gas Company and Northern Utilities Inc. also bid for capacity on PNGTS beginning

---

<sup>17</sup> EB-2012-0451/EB-2012-0433/EB-2013-0074, Exhibit I.A1.UGL.Staff.1, b); EB-2014-0261, Exhibit B.APPrO.1, d), e), f).

<sup>18</sup> Includes natural gas-fired power generator contracts that are commercially structured based on the price of natural gas at Dawn for approximately 5,560 MW of Ontario's electricity production capacity.

1 November 1, 2022. Enbridge Gas has executed Precedent Agreements and Financial  
 2 Assurance Agreements with TC Energy for the volumes bid into TC Energy's open  
 3 season for capacity on TC Energy's Mainline to serve customers in the EGD rate zone.

4 **Table 6-9**

5

<u>Shipper</u>	<u>Start Date</u>	<u>Path</u>	<u>Allocated Quantity (GJ/d)</u>
EGD	01-Nov-21	Parkway to Enbridge CDA	100,000
EGD	01-Nov-21	Parkway to Enbridge EDA	25,000 <sup>19</sup>
Bangor Natural Gas Company	01-Nov-22	Parkway to East Hereford/Pittsburgh	8,653
Northern Utilities Inc.	01-Nov-22	Parkway to East Hereford/Pittsburgh	10,660

6

7 **Table 6-10**

8

<u>Shipper</u>	<u>Start Date</u>	<u>Path</u>	<u>Allocated Quantity (GJ/d)</u>
Bangor Natural Gas Company	01-Nov-22	Pittsburgh to Westbrook	8,525
Northern Utilities, Inc	01-Nov-22	Pittsburgh to Dracut	10,551

9

10 TC Energy will be building a new compressor at Maple called the C-5 unit and filed for  
 11 Canadian Energy Regulator approval in September 2019 to serve the capacity awarded  
 12 in its associated open seasons.<sup>20</sup> Similar system expansions have been required of TC  
 13 Energy in the past to support expansion of the TC Energy Mainline as approved by the  
 14 National Energy Board (prior to the establishment of the Canadian Energy Regulator).

---

<sup>19</sup> Of the total 125,000 GJ/d bid received from EGD in the Open Season for a November 1, 2021 start date, 25,000 GJ/d was subject to shift to a November 1, 2022 start date depending on the outcome of TC Energy's open season on TC Energy's Mainline for Parkway takeaway capacity. At this time, TC Energy has informed Enbridge Gas that a November 1, 2021 start date for this capacity is possible.

<sup>20</sup> <https://apps.cer-rec.gc.ca/REGDOCS/Item/View/3820047>

1 Enbridge Gas understands that PNGTS will be serving the demands of Bangor Natural  
2 Gas Company and Northern Utilities Inc. through capacity created by the Westbrook  
3 Xpress Project which includes building a new compressor at Westbrook, Maine.

4  
5 As noted in Section 3 above, ex-franchise shippers are required to waive conditions  
6 precedent within their Transportation Contracts with Enbridge Gas, with respect to  
7 downstream pipeline capacity, by November 30, 2019.

8

## 9 **6. Longer-Term Expectations for the Dawn Parkway System**

### 10 **Growth Opportunities**

11 Enbridge Gas has contracted significant Dawn Parkway System firm transportation  
12 capacity with shippers effective 2015 through 2021 and based on current market  
13 inquiries, expects that there will be incremental in-franchise and ex-franchise demand  
14 for Dawn Parkway System capacity in the future, possibly as early as 2022/2023.

15

### 16 **Dawn Parkway System Utilization**

17 Transportation contracts on the Dawn Parkway System have varying term expirations.  
18 Shippers with initial terms that have expired automatically extend their contract term one  
19 year or can terminate their contract with two years notice. As a result, Enbridge Gas  
20 may be required to manage turn back risk.<sup>21</sup> The current average term remaining on

---

<sup>21</sup> Shippers can also turn back transportation capacity on the Dawn Parkway System through reverse open seasons which are utilized to reduce expansion capacity and resulting facility requirements.

1 easterly flowing Dawn Parkway System transportation contracts is 5.9 years (weighted  
2 by quantity).<sup>22</sup> These contracts are mainly held by Québec and Eastern Canadian utility  
3 customers, U.S. Northeast utility customers, and Ontario power generators.

4  
5 Recently, Enbridge Gas was notified of intent to turnback approximately 89 TJ/d of  
6 Dawn to Parkway capacity effective March 31, 2021. Enbridge Gas has no expectation  
7 of further turn back of Dawn to Parkway capacity at this time and believes there are  
8 future Dawn Parkway System growth opportunities and limited risk of capacity turnback.  
9 ICF's findings on Dawn Parkway System utilization, as set out below, support this  
10 conclusion.

### 11 **ICF International Findings on Dawn Parkway System Utilization**

12 In its 2019 ICF Report (see Exhibit A, Tab 5, Attachment 1), ICF International  
13 addressed the expected utilization of the Dawn Parkway System in the future,  
14 particularly in light of the changing North American natural gas supply dynamics.

15 Overall, ICF concludes that the new facilities proposed by Enbridge Gas respond to  
16 market needs and should be expected to remain fully contracted with limited de-  
17 contracting risk. Specifically, ICF states that:<sup>23</sup>

- 18 • The major natural gas market changes currently underway provide incentives  
19 over the long term for utilities and large gas customers in Ontario and Québec,  
20

---

<sup>22</sup> This does not include capacity contracted for EGD rate zone customers.

<sup>23</sup> Exhibit A, Tab 5, Attachment 1, pp. 42-43.

1 and in the U.S. Northeast to continue to hold pipeline capacity in Ontario and to  
2 increase reliance on supplies from the Marcellus/Utica shale. The Dawn Parkway  
3 System provides economic access to these supplies at a liquid trading hub with  
4 significant pipeline and storage infrastructure to ensure operational flexibility.

- 5 • Increasing demand, and especially peak demand, in eastern Canada and the  
6 U.S. Northeast, coupled with limitations on pipeline development in New York  
7 and New England, makes Dawn an important transportation and storage location  
8 for Marcellus/Utica gas destined for those markets.
- 9 • Net utilization of the natural gas infrastructure in Ontario (Ontario demand plus  
10 exports) is expected to increase between 2020 and 2040 on both an annual and  
11 a peak month basis, leading to continued utilization of the pipeline and storage  
12 assets in Ontario, including the Dawn Parkway System, and the proposed Dawn  
13 Parkway System capacity expansion project should remain highly utilized in the  
14 future.

# Dawn Parkway Firm Transportation Open Season -

## Accessing liquid, diverse, abundant supply sources

**August 29, 2018**

Union Gas Limited ("Union Gas"), an Enbridge company, is holding an open season for firm M12 transportation service ("Open Season") for up to 350,000 GJ/d of capacity beginning in 2021 and up to 250,000 GJ/d of capacity beginning in 2022 along the following transportation paths:

- (a) Dawn to Parkway;
- (b) Dawn to Kirkwall; and
- (c) Kirkwall to Parkway.

Union Gas is also offering a portion of this Open Season capacity through the flexible M12-X firm transportation service which includes Dawn, Parkway and Kirkwall as receipt and delivery points. This service provides a shipper with the flexibility to transport gas between the three interconnects on the Union Gas Dawn Parkway System in any direction on a firm basis.

A limited amount of capacity may also be available as early as November 1, 2019. Please contact your account manager directly to discuss.

The Open Season closes and all bids are due on or before **1:00 PM Eastern Time, November 16, 2018**. Union Gas will contact all responding parties on or before November 19, 2018. Union Gas expects to award capacity on or before December 7, 2018.

The Open Season offers firm access to not only the liquidity and diversity of the Dawn Hub, but also access to Appalachian supplies at the Dawn Hub and through the Niagara and Chippawa supply points. Customers in eastern Canada and the U.S. Northeast can access these supply points by aligning Union Gas transportation service with downstream pipeline capacity offered on TransCanada and other interconnecting systems in the United States and Canada.

- [Download Open Season Package](#)
- View [Financial Backstopping Agreement](#) and [Precedent Agreement](#)

The Dawn Hub is the largest integrated natural gas storage facility in Canada and one of the largest in North America. The Dawn Hub is fully integrated into the North American supply and transportation system providing shippers with the ability to access competitive, diverse and flexible supply options.

## Dawn to Parkway M12 Firm Transportation Open Season

### *Accessing liquid, diverse, abundant supply sources*

#### August 29, 2018

Union Gas Limited (“Union Gas”), an Enbridge company, is holding an open season for firm M12 transportation service (“Open Season”) for up to 350,000 GJ/d of capacity beginning in 2021 and up to 250,000 GJ/d of capacity beginning in 2022 along the following transportation paths:

- (a) Dawn to Parkway;
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Union Gas is also offering a portion of this Open Season capacity through the flexible M12-X firm transportation service which includes Dawn, Parkway and Kirkwall as receipt and delivery points. This service provides a shipper with the flexibility to transport gas between the three interconnects on the Union Gas Dawn Parkway System in any direction on a firm basis.

A limited amount of capacity may also be available as early as November 1, 2019. Please contact your [account manager](#) directly to discuss.

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The Dawn Hub is the largest integrated natural gas storage facility in Canada and one of the largest in North America. The Dawn Hub is fully integrated into the North American supply and transportation system providing shippers with the ability to access competitive, diverse and flexible supply options.

Dawn to Parkway / Dawn to Kirkwall / Kirkwall to Parkway M12 Firm Transportation Service
<b>Total Capacity Available:</b> up to 350,000 GJ/d starting in 2021 and up to 250,000 GJ/d starting in 2022*
<b>Start Date(s):</b> November 1, 2021 and/or November 1, 2022
<b>Term:</b> Minimum of 15 Years
<b>Receipt Point(s):</b> Dawn or Kirkwall
<b>Delivery Point:</b> Kirkwall or Parkway
<b>Rate:</b> Service in accordance with the OEB approved Union Gas <a href="#">M12 Rate Schedule</a>
<b>Fuel:</b> In accordance with the OEB approved Union Gas <a href="#">M12 Rate Schedule</a>
<ul style="list-style-type: none"> <li>• <a href="#">Standard Contract</a></li> <li>• <a href="#">M12 Rate Schedule</a></li> </ul>

M12-X Firm Transportation Service
<b>Total Capacity Available:</b> up to 350,000 GJ/d starting in 2021 and up to 250,000 GJ/d starting in 2022*
<b>Start Date:</b> November 1, 2021 and/or November 1, 2022
<b>Term:</b> Minimum of 15 Years
<b>Receipt Point(s):</b> Dawn, Parkway, Kirkwall
<b>Delivery Point:</b> Dawn (Facilities), Parkway, Kirkwall
<b>Rate:</b> Service in accordance with the OEB approved Union Gas <a href="#">M12-X Rate Schedule</a>
<b>Fuel:</b> In accordance with the OEB approved Union Gas <a href="#">M12-X Rate Schedule</a>
<ul style="list-style-type: none"> <li>• <a href="#">Standard Contract</a></li> <li>• <a href="#">M12-X Rate Schedule</a></li> </ul>

*\*Total capacity available for M12 and M12-X firm transportation service combined is up to 350,000 GJ/d in 2021 and up to 250,000 GJ/d in 2022.*

### Submitting a Bid for Service

Union Gas, at its sole discretion, reserves the right to reject any and all proposals received, terminate the Open Season, or modify or extend the Open Season or related documents. All capacity requests that meet the respective service parameters during this Open Season will be awarded as per Union Gas' Allocation Procedures in Section XVI of the Union Gas M12 tariff [General Terms and Conditions](#), starting with those bids with the highest economic value. If the economic values of two or more independent bids are equal, then service shall be allocated on a pro-rata basis. The economic value shall be based on the net present value which shall be calculated based on the proposed per unit rate and the proposed term of the contract and without regard to the proposed contract demand.

Any suggested conditions precedent proposed by the bidder should be clearly articulated and attached to the bid form and will be considered during the capacity allocation process. Successful bidders will be expected to enter into a definitive **Precedent Agreement** with Union Gas within 30 days of awarding the Open Season capacity.

A **Financial Backstopping Agreement** may also be required. The need for such an agreement will be determined by the facilities required to provide the transportation service requested by the shipper. Contact your [account manager](#) to discuss the Financial Backstopping Agreement in more detail.

Any party wishing to submit a bid for M12/M12-X service should complete, sign and return the appropriate Firm Transportation Bid Form by email to Dave Janisse:

**Email:** [djanisse@uniongas.com](mailto:djanisse@uniongas.com)      **Phone:** (519) 436-5442

## UNION GAS M12/M12-X FIRM TRANSPORTATION SERVICE BID FORM

Please complete and submit this Bid Form on or before 1:00 PM, EST, November 16, 2018.

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The purpose of this Open Season is for Union Gas to determine the facility design requirements to support market needs. Union Gas will determine whether or not to proceed with offering any of the services defined in this Open Season based on the assessment of the results from this Open Season.

---

Shippers may submit more than one Bid Form. Please indicate your requirements below:

### Firm Transportation Bid

Service:	M12	M12-X
Receipt Point (select one per bid):		
Delivery Point (select one per bid):		
Start Date (select one per bid):	Nov 1, 2021	Nov 1, 2022
Quantity (GJ/d):		
Term (Years, 15 year minimum ending October 31):		

---

### Bidder Information:

Shipper Legal Name:

Contact Person:

Telephone Number:

Email Address:

Y N: Is the bid subject to any conditions precedent in addition to the standard preconditions in Section XXI of Union Gas' [M12 General Terms and Conditions](#)? If so, please articulate those conditions and attach them to this Bid Form.

---

Date (mm/dd/yyyy):

Signature: \_\_\_\_\_

# **Dawn Parkway Firm Transportation Reverse Open Season**

## **Binding Reverse Open Season Dawn to Parkway Firm Transportation Capacity Turn-back**

**November 26, 2018**

Union Gas Limited ("Union Gas"), an Enbridge company, recently conducted an open season for new M12 transportation service on Union Gas' Dawn Parkway System. The open season commenced Aug. 29, 2018 and closed on Nov. 16, 2018 (the "Open Season").

Incremental requests for transportation service on the Dawn Parkway System arising from the Open Season can be satisfied through the expansion of physical facilities on the Dawn Parkway System or through a reduction in the current contractual commitments with existing shippers on the system, such reductions to be effective Nov. 1, 2021 and/or Nov. 1, 2022.

In order to promote the most efficient use of the Dawn Parkway System, while minimizing the overall cost to shippers, Union Gas is conducting a reverse open season ("Reverse Open Season"). Current shippers on the Dawn Parkway System that wish to turn back Dawn to Parkway transportation capacity before the end of the initial term of their contract are invited to bid into this Reverse Open Season.

Your cooperation in completing the attached Binding Reverse Open Season Bid Form ("Bid Form") will serve to advise Union Gas of your binding commitment to turn back existing contracted transportation capacity.

To be eligible to turn back transportation capacity, Bid Forms must be received prior to 1 p.m. Eastern Time on Nov. 30, 2018. Union Gas will review Bid Forms and acknowledge all Bid Forms received on or before Dec. 3, 2018. If a bid is accepted, with or without conditions, Union Gas will notify the successful bidder accordingly no later than nine months in advance of the turn back date.

Bids will be ranked and accepted according to lowest net present value. For example, a contract with two years remaining on the primary term would be accepted ahead of a similar contract with five years remaining on the term.

Any and all bids will be binding upon the bidder and conditional upon Union Gas executing contracts with other shippers for new capacity on the Dawn Parkway System for service commencing Nov. 1, 2021 and/or Nov. 1, 2022, with all conditions precedent within those contracts being satisfied or waived in accordance with the terms of those contracts.

Shippers who currently have an option to provide notice of termination on their existing transportation contracts by Oct. 31, 2019, and who wish to turn capacity back to Union Gas (in whole or in part) may participate in this Reverse Open Season (preferable), or they may wait and provide notice by Oct. 31, 2019 as per the renewal provisions in their contract.

- [Download Reverse Open Season Package](#)

The Dawn Hub is the largest integrated natural gas storage facility in Canada and one of the largest in North America. The Dawn Hub is fully integrated into the North American supply and transportation system providing shippers with the ability to access competitive, diverse and flexible supply options.

## Binding Reverse Open Season Dawn to Parkway Firm Transportation Capacity Turn-back

**November 26, 2018**

Union Gas Limited (“**Union Gas**”), an Enbridge company, recently conducted an open season for new M12 transportation service on Union Gas’ Dawn Parkway System. The open season commenced Aug. 29, 2018 and closed on Nov. 16, 2018 (the “**Open Season**”).

Incremental requests for transportation service on the Dawn Parkway System arising from the Open Season can be satisfied through the expansion of physical facilities on the Dawn Parkway System or through a reduction in the current contractual commitments with existing shippers on the system, such reductions to be effective Nov. 1, 2021 and/or Nov. 1, 2022.

In order to promote the most efficient use of the Dawn Parkway System, while minimizing the overall cost to shippers, Union Gas is conducting a reverse open season (“**Reverse Open Season**”). Current shippers on the Dawn Parkway System that wish to turn back Dawn to Parkway transportation capacity before the end of the initial term of their contract are invited to bid into this Reverse Open Season.

Your cooperation in completing the attached Binding Reverse Open Season Bid Form (“**Bid Form**”) will serve to advise Union Gas of your binding commitment to turn back existing contracted transportation capacity.

To be eligible to turn back transportation capacity, Bid Forms **must be received prior to 1 p.m. Eastern Time on Nov. 30, 2018**. Union Gas will review Bid Forms and acknowledge all Bid Forms received on or before Dec. 3, 2018. If a bid is accepted, with or without conditions, Union Gas will notify the successful bidder accordingly **no later than nine months in advance of the turn back date**.

Bids will be ranked and accepted according to lowest net present value. For example, a contract with two years remaining on the primary term would be accepted ahead of a similar contract with five years remaining on the term.

Any and all bids will be binding upon the bidder and conditional upon Union Gas executing contracts with other shippers for new capacity on the Dawn Parkway System for service commencing Nov. 1, 2021 and/or Nov. 1, 2022, with all conditions precedent within those contracts being satisfied or waived in accordance with the terms of those contracts.

Shippers who currently have an option to provide notice of termination on their existing transportation contracts by Oct. 31, 2019, and who wish to turn capacity back to Union Gas (in whole or in part) may participate in this Reverse Open Season (preferable), or they may wait and provide notice by Oct. 31, 2019 as per the renewal provisions in their contract.

If you have any questions, please contact your [account manager](#).



## Binding Reverse Open Season Bid Form

Please complete, sign and return this Binding Reverse Open Season Bid Form on or before 1 p.m. Eastern Time on Nov. 30, 2018 via email to Dave Janisse:

**Email:** [djanisse@uniongas.com](mailto:djanisse@uniongas.com)    **Phone:** (519) 436-5442

In response to Union Gas' Binding Reverse Open Season notification, dated Nov. 26, 2018, ("Shipper") irrevocably confirms its request to permanently turn back all or a portion of its Union Gas firm transportation contracts as outlined below:

	<b>Contract #1</b>	<b>Contract #2</b> (if applicable)	<b>Contract #3</b> (if applicable)
Contract number:			
Turn-back start date:	Nov. 1, 2021 Nov. 1, 2022	Nov. 1, 2021 Nov. 1, 2022	Nov. 1, 2021 Nov. 1, 2022

Receipt Point:

Delivery Point:

Turn-back Quantity(GJ/d):

It is understood that Union Gas will review all Bid Forms and acknowledge all Bid Forms received on or before Dec. 3, 2018. If Shipper's bid is accepted, with or without conditions, Union Gas will notify Shipper accordingly **no later than nine months in advance of the turnback date.** Any and all bids will be binding upon the Shipper and conditional upon Union Gas executing contracts with other shippers for new capacity on the Dawn Parkway System for service commencing Nov. 1, 2021 and/or Nov. 1, 2022, with all conditions precedent within those contracts being satisfied or waived in accordance with the terms of those contracts.

### Acknowledged and agreed By:

Shipper Legal Name:

Contact Person:

Telephone Number:

Email Address:

Date (mm/dd/yy):

Signature: \_\_\_\_\_

1 **FACILITIES PLANNING**

2 The purpose of this section of evidence is to: (i) review the current operation of the  
3 Dawn Parkway System; (ii) outline changes to the Dawn Parkway System demand and  
4 capacity; and (iii) outline the proposed system reinforcement requirements,  
5 reinforcement alternatives and to describe the proposed Project facilities.

6  
7 This Tab of evidence is organized as follows:

- 8 1. Dawn Parkway System Design
- 9 2. Dawn Parkway System Demand
- 10 3. Dawn Parkway System Capacity
- 11 4. Dawn Parkway System Reinforcement Requirements and Alternatives
- 12 5. Proposed Facilities

13  
14 Growing design day demand for natural gas on the Dawn Parkway System (including:  
15 134,266 GJ/d for EGD Rate Zone;<sup>1</sup> 57,606 GJ/d for Union South Rate Zone;  
16 15,592 GJ/d for Union North Rate Zone;<sup>2</sup> and 87,734 GJ/d for ex-franchise customers  
17 between winter 2019/2020 and winter 2022/2023), is driving the need to construct  
18 incremental facilities. Despite receiving notification of 101,062 GJ/d of Dawn Parkway  
19 System capacity turnback this incremental demand is forecasted to cause a capacity  
20 shortfall in the winter of 2021/2022. A shortfall occurs when there is more design day

---

<sup>1</sup> Includes 9,266 GJ/d of potential growth which may result in future Dawn Parkway System open season bids.

<sup>2</sup> Includes 15,706 GJ/d of potential growth which may result in future Dawn Parkway System open season bids.

1 demand for transportation on the Dawn Parkway System than Enbridge Gas can serve  
2 using existing Dawn Parkway System capacity. To reduce the shortfall to a  
3 manageable level, Enbridge Gas proposes to construct an NPS 48 pipeline from  
4 Kirkwall to Hamilton which has a capacity of 92,174 GJ/d.

5

### 6 **1. Dawn Parkway System Design**

7 The Dawn Parkway System transports natural gas to delivery locations along the  
8 pipeline to meet the energy demands and pressure requirements of Enbridge Gas  
9 customers. Enbridge Gas customers include in-franchise customers in the EGD, Union  
10 South, and Union North rate zones, as well as ex-franchise transportation customers.  
11 The primary functions of the Dawn Parkway System include: (i) transportation of natural  
12 gas to meet in-franchise customer demands; (ii) easterly transportation of natural gas  
13 for ex-franchise transportation customers; and (iii) westerly transportation of natural gas  
14 for in-franchise customers and ex-franchise transportation customers.

15

16 The design day capacity model of the Dawn Parkway System includes the following  
17 assumptions:

- 18 • all in-franchise interruptible customers have been curtailed;
- 19 • all ex-franchise customers require their full easterly firm contracted volumes;
- 20 • all in-franchise Union South rate zone customers consume volumes equivalent to  
21 design day estimates, which are derived from historical consumption and  
22 forecast growth;

- 1 • all EGD rate zone customers consume volumes equivalent to their ex-franchise
- 2 contracted volumes (as formerly contracted by EGD);
- 3 • there are no supply failures and all obligated deliveries arrive at Parkway;
- 4 • a critical unit compressor outage has occurred at either Lobo or Bright;
- 5 • all compression at Parkway is available and online and the capacity of the
- 6 Parkway C Compressor will be held in reserve in the event of a critical unit
- 7 outage at Parkway;
- 8 • required pressure and supply are available from Dawn;
- 9 • required in-franchise and ex-franchise supply is arriving at Kirkwall;
- 10 • maximum operating pressure of 6,160 kPag (894 psig) between Dawn and
- 11 Parkway-Compressed;
- 12 • maximum operating pressure of 6,450 kPag (935 psig) for the GTA Line between
- 13 Parkway-Compressed and Albion;
- 14 • minimum pressures for laterals supplying in-franchise customers are met;
- 15 • minimum suction pressures for Dawn Parkway System compressor units of
- 16 3,450 kPag (500 psig) are met;
- 17 • minimum delivery pressure of 4,480 kPag (650 psig) at Kirkwall is met;
- 18 • minimum delivery pressure of 6,450 kPag (935 psig) at Parkway-Compressed
- 19 (TC Energy) and Parkway-Compressed (EGT) is met;
- 20 • minimum delivery pressure of 5,760 kPag (835 psig) at Albion is met; and
- 21 • minimum delivery pressure of 3,450 kPag (500 psig) at Parkway-Uncompressed
- 22 (Consumers 1 and 2, and Lisgar stations) is met.

1 The Dawn to Parkway Transmission System – Review of System Design  
2 document at Exhibit A, Tab 7, Attachment 1, provides additional detail on the  
3 criteria used to review the Dawn Parkway System to determine if the existing  
4 facilities are adequate from a capacity and reliability standpoint to service the  
5 forecast design day demands of in-franchise and ex-franchise customers.  
6

7 **i) Transportation of Natural Gas to Meet In-franchise Demands**

8 Enbridge Gas meets in-franchise demand by delivering natural gas volumes to:

- 9 • Dawn Parkway System laterals for delivery to Union South rate zone customers  
10 along the pipeline system between Dawn and Parkway.<sup>3</sup>
- 11 • Kirkwall for redelivery to Union South rate zone customers in the City of Hamilton  
12 and Haldimand and Norfolk Counties (Union CDA, Union ECDA) via TC Energy  
13 Mainline and for redelivery to EGD rate zone customers in Niagara (Enbridge  
14 CDA) via TC Energy Mainline.
- 15 • Parkway-Uncompressed for delivery to EGD rate zone customers in the GTA  
16 (Enbridge CDA) at Parkway Consumers (1 and 2) and Lisgar stations.
- 17 • Parkway-Compressed to TC Energy Mainline for redelivery: to Union North rate  
18 zone customers in Union EDA, Union NDA, Union NCDA, and Union WDA; to  
19 EGD rate zone customers in the GTA (Enbridge CDA), and Ottawa (Enbridge

---

<sup>3</sup> The existing Parkway Compressor Station and the new Parkway West Compressor Station are collectively referred to as 'Parkway' in this section of evidence.

1 EDA); and to Union South rate zone customers in Oakville and Burlington on the  
2 TC Energy Domestic Line.

- 3 • Parkway-Compressed to EGT for redelivery to EGD rate zone customers in the  
4 GTA (Enbridge CDA) at Albion station.

5

6 **ii) Easterly Transportation of Natural Gas for Ex-franchise Transportation**

7 **Customers**

8 Enbridge Gas meets ex-franchise demand by transporting natural gas volumes from: (i)  
9 Dawn with deliveries to TC Energy at Kirkwall and at Parkway-Compressed; and (ii)  
10 Kirkwall with deliveries to TC Energy Mainline at Parkway-Compressed.

11

12 **iii) Westerly Transportation of Natural Gas for In-franchise and Ex-franchise**

13 **Transportation Customers**

14 Enbridge Gas meets ex-franchise demand by transporting natural gas volumes from: (i)  
15 Kirkwall with deliveries to Dawn; (ii) Parkway-Compressed with deliveries to Dawn; and  
16 (iii) Parkway-Compressed with deliveries to Kirkwall.

17

18 Enbridge Gas models the capacity of the Dawn Parkway System to meet in-franchise  
19 and easterly ex-franchise firm demand on the design day. The design day weather  
20 condition for the Union South rate zone is 43.1 Degree Days (43.1DD), which  
21 represents an average daily temperature of minus -25.1 degrees centigrade. This  
22 temperature was derived from the coldest recorded temperature as measured at the  
23 London International Airport. The Union North rate zone and EGD rate zone demands

1 are based on multiple distinct design days to reflect the colder temperatures  
2 experienced in those regions.<sup>4</sup>

3

## 4 **2. Dawn Parkway System Demand**

5 The Dawn Parkway System transports natural gas to serve Enbridge Gas in-franchise  
6 customer demands (in the Union South, Union North, and EGD rate zones) and ex-  
7 franchise customer demands for easterly transportation.

8

9 The total forecasted Dawn Parkway System design day demand, including both in-  
10 franchise and ex-franchise customers, is 7,862,813 GJ/d for winter 2019/2020. Table 7-  
11 1 summarizes forecasted Dawn Parkway System design day demand changes between  
12 winter 2019/2020 and winter 2022/2023 according to in-franchise rate zone and ex-  
13 franchise transportation path. Details on the Dawn Parkway System design day  
14 demands for each winter can be found at Exhibit A, Tab 7, Schedules 1-4. A summary  
15 of Dawn Parkway System design day demands for winter 2019/2020 to winter  
16 2022/2023 can be found at Exhibit A, Tab 7, Schedule 5.

17

18 Design day demand increases for the EGD and Union North rate zones, as outlined in  
19 Exhibit A, Tab 6, Tables 6-3, 6-4, and 6-5, are greater than the respective Open Season  
20 bids for these rate zones. These Open Season bids were made in August 2018, based  
21 on 2019 design day demand forecasts, which was the best available information at the

---

<sup>4</sup> For additional information regarding Degree Day values for Union North and EGD rate zones, refer to EB-2019-0137, Enbridge Gas Inc. – 5 year Gas Supply Plan, pp. 34-35 and 74-75.

1 time. The Application relies upon the 2020 design day demand forecast which is the  
2 best information presently available.

3

4 Enbridge Gas has elected to serve a portion of forecasted design day demand  
5 increases by acquiring incremental Dawn Parkway transportation capacity. Allocation of  
6 Dawn Parkway transportation capacity included consideration of Union South rate zone  
7 forecasted design day demand increases for winter 2020/2021 and winter 2021/2022.

8 Enbridge Gas will evaluate how best to serve incremental demand as soon as winter  
9 2022/2023 within the Union rate zones at such time that it is appropriate to do so.

10

1  
 2

**Table 7-1**  
**Dawn Parkway System Demand Summary**

<b><u>Forecast Dawn Parkway System Demand</u></b>	<b><u>GJ/d</u></b>
<b>2019/2020 System Demand (Nov 1, 2019)</b>	<b>7,862,813</b>
<b><i>2019/2020 In-franchise Demands</i></b>	
EGD rate zone	0
Union South rate zone	25,264
Union North rate zone	2,059
<b><i>2019/2020 Ex-franchise Demands</i></b>	
Dawn to Parkway	68,063
Kirkwall to Parkway	0
Dawn to Parkway turn back	-12,334
Dawn to Kirkwall turn back	0
<b>2020/2021 System Demand (Nov 1, 2020)</b>	<b>7,945,865</b>
<b><i>2020/2021 In-franchise Demands</i></b>	
EGD rate zone	125,000
Union South rate zone	16,475
Union North rate zone	10,688
<b><i>2020/2021 Ex-franchise Demands</i></b>	
Dawn to Parkway	0
Kirkwall to Parkway	0
Dawn to Parkway turn back	-88,728
Dawn to Kirkwall turn back	0
<b>2021/2022 System Demand (Nov 1, 2021)</b>	<b>8,009,300</b>
<b><i>2021/2022 In-franchise Demands</i></b>	
EGD rate zone	9,266
Union South rate zone	15,867
Union North rate zone	2,845
<b><i>2021/2022 Ex-franchise Demands</i></b>	
Dawn to Parkway	19,671
Kirkwall to Parkway	0
Dawn to Parkway turn back	0
Dawn to Kirkwall turn back	0
<b>2022/2023 System Demand (Nov 1, 2022)</b>	<b>8,056,949</b>

3  
 4

1 The forecasted EGD rate zone design day demand, which is equivalent to the firm  
2 capacity included in former EGD M12 contracts, served from the Dawn Parkway System  
3 in winter 2019/2020 is 3,060,102 GJ/d. In winter 2021/2022, the EGD rate zone design  
4 day demand is forecasted to increase by 125,000 GJ/d to a total design day demand of  
5 3,185,102 GJ/d. In winter 2022/2023, the EGD rate zone design day demand is  
6 forecasted to increase by 9,266 GJ/d to a total design day demand of 3,194,368 GJ/d.<sup>5</sup>

7

8 The forecasted Union South rate zone design day demand served from the Dawn  
9 Parkway System in winter 2019/2020 is 1,902,235 GJ/d. In winter 2020/2021, the  
10 Union South rate zone design day demand is forecasted to increase by 25,264 GJ/d to  
11 a total design day demand of 1,927,499 GJ/d. In winter 2021/2022, the Union South  
12 rate zone design day demand is forecasted to increase by 16,475 GJ/d to a total design  
13 day demand of 1,943,974 GJ/d. In winter 2022/2023, the Union South rate zone design  
14 day demand is forecasted to increase by 15,867 GJ/d to a total design day demand of  
15 1,959,841 GJ/d. Enbridge Gas may bid into a future Dawn Parkway System  
16 transportation capacity open season to serve increased winter 2022/2023 Union South  
17 rate zone design day demand.

18

---

<sup>5</sup> In August 2018, prior to amalgamation and as an ex-franchise customer, EGD bid 125,000 GJ/d for EGD rate zone in the Open Season for winter 2021/2022. An additional 9,266 GJ/d of EGD rate zone design day demand forecasted for winter 2022/2023 is included as future potential Dawn Parkway System demand. This forecast demand will be managed by Enbridge Gas and may result in subsequent bids for incremental Dawn Parkway transportation capacity in the future.

1 The forecasted Union North rate zone design day demand transported on the Dawn  
2 Parkway System in winter 2019/2020 is 438,019 GJ/d.<sup>6</sup> In winter 2020/2021, the Union  
3 North rate zone design day demand is forecasted to increase by 2,059 GJ/d to a total  
4 design day demand of 440,078 GJ/d. In winter 2021/2022, the Union North rate zone  
5 design day demand is forecasted to increase by 10,688 GJ/d to a total design day  
6 demand of 450,766 GJ/d. In winter 2022/2023, the Union North rate zone design day  
7 demand is currently forecasted to increase by 2,845 GJ/d to a total design day demand  
8 of 453,611 GJ/d. Enbridge Gas may bid into a future Dawn Parkway System  
9 transportation capacity open season to serve increased winter 2022/2023 Union North  
10 rate zone design day demand.

11  
12 Ex-franchise design day demand volumes transported on the Dawn Parkway System  
13 change frequently due to ongoing open seasons and subsequent elections to turnback  
14 capacity. In winter 2020/2021, ex-franchise design day demand is forecasted to  
15 increase by 68,063 GJ/d because of requests for existing capacity, and to decrease by  
16 12,334 GJ/d due to elections to turnback capacity, resulting in a total ex-franchise  
17 design day demand of 2,518,186 GJ/d. In winter 2021/2022, ex-franchise design day  
18 demand is forecasted to decrease by 88,728 GJ/d due to elections to turnback capacity,  
19 resulting in a total ex-franchise design day demand of 2,429,958 GJ/d. In winter  
20 2022/2023, ex-franchise design day demand is forecasted to increase by 19,671 GJ/d

---

<sup>6</sup> Union North rate zone design day demand is delivered to Parkway and transported to Union North rate zone delivery areas via the TC Energy Mainline.

1 because of Open Season bids resulting in a total ex-franchise design day demand of  
2 2,449,129 GJ/d.

3

4 The Open Season and existing capacity requests underlying increases to ex-franchise  
5 design day demand are as follows:

- 6 • 67,104 GJ/d Dawn to Parkway for TC Energy (Nov 1, 2020)
- 7 • 959 GJ/d Dawn to Parkway for Liberty Utilities (formerly Enbridge Gas  
8 New Brunswick) (Nov 1, 2020)
- 9 • 8,796 GJ/d Dawn to Parkway for Bangor Natural Gas Company (Nov 1,  
10 2022)
- 11 • 10,875 GJ/d Dawn to Parkway for Northern Utilities Inc. (Nov 1, 2022)

12

13 The elections to turnback capacity underlying decreases to ex-franchise design day  
14 demand amount to 12,334 GJ/d effective November 1, 2020 and 88,728 GJ/d effective  
15 November 1, 2021.

16

17 The total forecasted increase in design day demand between winter 2019/2020 and  
18 winter 2022/2023 is 295,198 GJ/d which includes 134,266 GJ/d for EGD rate zone,  
19 57,606 GJ/d for the Union South rate zone, 15,592 GJ/d for the Union North rate zone  
20 and 87,734 GJ/d for ex-franchise customers.

21

1 The forecasted design day demand increase of 295,198 GJ/d and the forecasted  
2 capacity turnback of 101,062 GJ/d results in a net design day demand increase of  
3 194,136 GJ/d between winter 2019/2020 and winter 2022/2023. As set out in Table 7-2  
4 below, the net design day demand increase, is projected to result in a shortfall in  
5 capacity on the Dawn Parkway System (i.e. there is more demand for transmission  
6 capacity than can be physically supplied by the existing Dawn Parkway System) of  
7 59,392 GJ/d by November 1, 2020 and of 164,798 GJ/d by November 1, 2022 such that  
8 additional facilities or non-facility options are required to serve incremental design day  
9 demand.

10

### 11 **3. Dawn Parkway System Capacity**

12 Dawn Parkway System capacity is made up of two components, including: (i) physical  
13 system capacity; and (ii) Parkway Delivery Obligations (“PDO”) and is a function of:  
14 (i) pipeline and compressor facilities in operation; (ii) the location that demand is being  
15 consumed; and (iii) the location of supply delivery to the system.<sup>7</sup>

16

17 The total forecasted Dawn Parkway System capacity is 7,878,469 GJ/d for winter  
18 2019/2020. This capacity will set the baseline for discussion going forward. Table 7-2  
19 summarizes forecasted system capacity changes between winter 2019/2020 and winter  
20 2022/2023 according to in-franchise rate zone and ex-franchise transportation path.  
21 Details on the Dawn Parkway System capacity for each winter can be found at

---

<sup>7</sup> Including Parkway Delivery Obligation PDO gas supply delivered to the discharge side of Parkway.

1 Exhibit A, Tab 7, Schedules 1-4 in the lower centre of each page. A summary of Dawn  
2 Parkway System capacities for winter 2019/2020 to winter 2022/2023 can be found at  
3 Exhibit A, Tab 7, Schedule 5. Further, Exhibit A, Tab 7, Schedule 5 illustrates how  
4 Dawn Parkway System demand is served by Dawn Parkway System capacity.

5

6 The physical system capacity is the amount of demand that can be served from the  
7 existing pipeline and compressor facilities. The capacity is directly related to the  
8 location of the demands served and supply deliveries to the Dawn Parkway System.

9

10 In the overall gas supply plan, there is a level of obligated deliveries (“DCQ”) to  
11 Enbridge Gas for the Union South Rate Zone in-franchise system supply and direct  
12 purchase customers. A portion of these volumes, referred to as the PDO are required  
13 to be delivered at Parkway on the downstream side of the compressors. Enbridge Gas  
14 considers the PDO in the design day analysis of the Dawn Parkway System to reduce  
15 physical transportation needs from Dawn to Parkway. Overall, this reduction of Dawn to  
16 Parkway transportation has reduced the amount of facilities required. This is achieved  
17 because volumes delivered at Parkway, directly offset the need for Dawn to Parkway  
18 transportation.

19

20 The PDO reduction available because of Dawn to Kirkwall turn back volume was  
21 reduced to zero effective in winter 2018/2019 consistent with the OEB-approved  
22 settlement agreement (EB-2014-0365). There is no additional PDO reduction available  
23 as there is no future Dawn to Kirkwall turn back forecast.

1 Any remaining system demand that cannot be served by the physical system capacity  
2 or the PDO is defined as the system shortfall. Conversely, system capacity in excess of  
3 system demand is defined as the system surplus

4

5 In winter 2019/2020, the Dawn Parkway System is forecasted to have a total capacity of  
6 7,878,469 GJ/d, composed of physical design day capacity of 7,637,731 GJ/d and PDO  
7 of 240,738 GJ/d. Relative to the forecasted total design day demand of 7,862,813 GJ/d  
8 in winter 2019/2020, Enbridge Gas forecasts a Dawn Parkway System capacity surplus  
9 of 15,656 GJ/d.

10

11 In winter 2020/2021, the Dawn Parkway System is forecasted to have a total capacity of  
12 7,886,473 GJ/d, composed of physical design day capacity of 7,649,490 GJ/d and PDO  
13 of 236,983 GJ/d. Relative to the forecasted total design day demand of 7,945,865 GJ/d  
14 in winter 2020/2021, Enbridge Gas forecasts a Dawn Parkway System capacity shortfall  
15 of 59,392 GJ/d.

16

17 In winter 2021/2022, following implementation of the proposed Project which increases  
18 Dawn Parkway System capacity by 92,174 GJ/d, the Dawn Parkway System is  
19 forecasted to have a total capacity of 7,980,698 GJ/d composed of physical design day  
20 capacity of 7,746,176 GJ/d and PDO of 234,522 GJ/d. Relative to the forecasted total  
21 design day demand of 8,009,300 GJ/d in winter 2021/2022, Enbridge Gas forecasts a  
22 Dawn Parkway System capacity shortfall of 28,602 GJ/d.

23

1 In winter 2022/2023, the Dawn Parkway System is forecasted to have a total capacity of  
2 7,984,325 GJ/d composed of physical design day capacity of 7,748,994 GJ/d and PDO  
3 of 235,331 GJ/d. Relative to the forecasted total design day demand of 8,056,949 GJ/d  
4 in winter 2022/2023, Enbridge Gas forecasts a Dawn Parkway System capacity shortfall  
5 of 72,624 GJ/d.

6  
7 The PDO volumes delivered to Parkway include normal year to year changes in in-  
8 franchise contract rate customer DCQ which is forecasted to reduce PDO by  
9 5,407 GJ/d between winter 2019/2020 and winter 2022/2023.

10  
11 The design day demand changes detailed in Table 7-1 are reflected in a Dawn Parkway  
12 System capacity change in Table 7-2. A demand increase shown in Table 7-1 results  
13 in a capacity shortfall in Table 7-2. For example, the demand increase of 125,000 GJ/d  
14 for EGD rate zone results in a 125,000 GJ/d increase in shortfall. Likewise, a demand  
15 decrease shown in Table 7-1 results in a smaller capacity shortfall or a capacity surplus  
16 in Table 7-2.

17  
18 In the absence of additional Dawn Parkway System facilities, a total shortfall of 120,775  
19 GJ/d is forecast in winter 2021/2022 and 164,798 GJ/d in winter 2022/2023. The details  
20 of this shortfall per rate zone are as follows:

21

- 1           • EGD rate zone (134,266 GJ/d);
- 2           • Union South rate zone (43,923 GJ/d);<sup>8</sup> and
- 3           • Union North rate zone (15,592 GJ/d).
- 4           • Ex-franchise (-13,328 GJ/d)<sup>9</sup>

5   The forecasted shortfall is reduced by the capacity provided from the proposed Project  
6   of 92,174 GJ/d. The final forecasted shortfall for Winter 2022/2023 is 72,624 GJ/d.

7

---

<sup>8</sup> Composed of a change of physical capacity of 38,516 GJ/d and the reduction of PDO of 5,407 GJ/d.

<sup>9</sup> Composed of an ex-franchise shortfall of 87,734 GJ/d and an ex-franchise surplus of 101,062 GJ/d (due to turnback)

1  
 2

**Table 7-2**  
**Dawn Parkway System Capacity Position (Shortfall/Surplus)**

<b><u>Forecast Shortfall Change</u></b>	<b><u>GJ/d<sup>10</sup></u></b>
<b>2019/2020 System Surplus (Nov 1, 2019)</b>	<b>15,656</b>
<b><i>2019/2020 In-franchise Capacity Requirements</i></b>	
Union South rate zone	-13,505
Union North rate zone	-2,059
EGD rate zone	0
Parkway Delivery Obligation Reduction	-3,755
<b><i>2019/2020 Ex-franchise Capacity Requirements</i></b>	
Dawn to Parkway	-68,063
Kirkwall to Parkway	0
Dawn to Kirkwall turn back	0
Dawn to Parkway turn back	12,334
<b>2020/2021 System Shortfall (Nov 1, 2020)</b>	<b>-59,392</b>
<b><i>2020/2021 In-franchise Capacity Requirements</i></b>	
Union South rate zone	-11,962
Union North rate zone	-10,688
EGD rate zone	-125,000
Parkway Delivery Obligation Reduction	-2,461
<b><i>2020/2021 Ex-franchise Capacity Requirements</i></b>	
Dawn to Parkway	0
Kirkwall to Parkway	0
Dawn to Kirkwall turn back	0
Dawn to Parkway turn back	88,728
Kirkwall to Hamilton Pipeline Expansion	92,174
<b>2021/2022 System Shortfall (Nov 1, 2021)</b>	<b>-28,602</b>
<b><i>2021-2022 In-franchise Capacity Requirements</i></b>	
Union South rate zone	-13,049
Union North rate zone	-2,845
EGD rate zone	-9,266
Parkway Delivery Obligation Reduction	809
<b><i>2021/2022 Ex-franchise Capacity Requirements</i></b>	
Dawn to Parkway	-19,671
Kirkwall to Parkway	0
Dawn to Kirkwall turn back	0
Dawn to Parkway turn back.	0
<b>2022/2023 System Shortfall (Nov 1, 2022)</b>	<b>-72,624</b>

<sup>10</sup> Negative sign denotes an increased capacity need which creates a shortfall, positive sign denotes a reduced capacity need which creates a surplus.

1 **4. Dawn Parkway System Reinforcement Requirements and Alternatives**

2 The proposed Project was assessed against both non-facility and facility alternatives.  
3 Non-facility alternatives include services purchased from third parties at Parkway to  
4 meet design day demand and IRP options to reduce design day demand sufficiently to  
5 offset the need for expansion/reinforcement facilities. An example of purchased services  
6 would be a winter exchange service and an example of IRP would be incremental  
7 enhanced energy efficiency programming.

8

9 **Non-Facility Alternatives**

10 To determine whether non-facility alternatives are feasible in comparison to the  
11 proposed Project, Enbridge Gas evaluated a number of alternatives and assessed them  
12 against the following criteria:

- 13 • Must be economically viable with price certainty and not cost prohibitive;
- 14 • Must meet all design day and operational requirements;
- 15 • Must provide reliable firm service; and
- 16 • Must be commercially available - for a minimum three-year term with renewal  
17 rights (allows for replacement with a facility build).

18

19 As noted at Exhibit A, Tab 6, the Enbridge Gas 5-Year Gas Supply Plan evaluated a  
20 number of viable gas supply and transport options to satisfy gas supply demand for the  
21 EGD and Union rate zones and elected to bid for incremental Dawn Parkway System

1 capacity.<sup>11</sup> Whereas the options considered in the Enbridge Gas 5 Year Gas Supply  
2 Plan represent commodity and transportation purchase options that ensure enough  
3 supply to meet customer needs, the non-facility alternatives being examined in this  
4 section are strictly alternatives that would replace the need to build additional Dawn  
5 Parkway System facilities.

6  
7 Accordingly, Enbridge Gas evaluated the following non-facility alternatives to  
8 constructing the proposed Project:

- 9 i) Parkway Delivery Obligations
- 10 ii) Utilizing Third-Party Deliveries at Parkway
- 11 iii) Winter Peaking Transport Service
- 12 iv) Integrated Resource Planning

13  
14 Following its assessment of non-facility alternatives, Enbridge Gas concluded that: (i) it  
15 is not appropriate to manage Dawn Parkway System capacity shortfall of 120,775 GJ/d  
16 (by winter 2021/2022) and 164,798 GJ/d (by winter 2022/2023) through purchased  
17 services; and (ii) it is not reasonable or economic to implement, administer, measure  
18 and verify the effectiveness of IRP alternatives on the scale necessary to reduce Dawn  
19 Parkway System design day demand sufficiently to defer the need for  
20 expansion/reinforcement by November 1, 2021. However, Enbridge Gas has developed

---

<sup>11</sup> EB-2019-0137, 5-Year Gas Supply Plan, Appendix D and Appendix I.

1 a proposal for how IRP may be used to defer or avoid future facility  
2 expansion/reinforcement projects, which is set out at Exhibit A, Tab 13.

3  
4 i) **Parkway Delivery Obligations:**

5 Increasing PDO runs counter to the interests and preferences expressed by Enbridge  
6 Gas customers as it eliminates their ability to access and purchase gas at the liquid  
7 Dawn Hub, unfairly forcing certain customers to procure supply at Parkway, an illiquid  
8 market with few active counterparties. Enbridge Gas has been working with customers  
9 in recent years to move Union South rate zone PDO volumes to Dawn for this very  
10 reason. Further, increasing PDO as an alternative to the Project would similarly be  
11 inconsistent with the results of the Settlement Agreement to eliminate the PDO.<sup>12</sup>

12  
13 Enbridge Gas holds capacity on multiple upstream pipelines within its Union South rate  
14 zone transportation portfolio, providing its customers with access to several supply  
15 basins and market hubs, including: the WCSB, Gulf Coast, Chicago, the U.S. mid-  
16 continent and Marcellus/Utica. The resulting portfolio of suppliers and upstream  
17 transportation contracts provides diversity, increased security of supply and reduces  
18 exposure to price volatility.

19  
20 Enbridge Gas customers have repeatedly shown a preference for obligations at Dawn  
21 rather than Parkway, resulting in the settlement to move the PDO to Dawn. Obligating

---

<sup>12</sup> EB-2013-0365, OEB Decision and Order, June 16, 2014.

1 supplies at Parkway disconnects these customers from access to the liquid Dawn Hub  
2 and as such, has been rejected as an appropriate alternative.  
3

4 ii) **Utilizing Third-Party Deliveries at Parkway:**

5 Enbridge Gas examined the potential for TC Energy to provide an exchange service  
6 utilizing a Dawn Long Term Fixed Price service (“LTFP”). LTFP service expires in 2028  
7 with an early termination option in 2023. The LTFP contracts can be terminated with two  
8 years notice. Further, LTFP shippers are not obligated to flow contracted volumes every  
9 day. This alternative is not a reliable long-term option to serve Enbridge Gas design  
10 day demand as it poses significant operational and commercial risk if not available  
11 beyond the original term or if shippers elect to not nominate for sufficient flow on design  
12 day to support the exchange service.  
13

14 iii) **Winter Peaking Transport Service:**

15 Enbridge Gas examined the potential to purchase a winter peaking transport service  
16 (delivered at Parkway) from a third-party to manage design day shortfall throughout the  
17 winter. This alternative would require guaranteed delivery of 92,174 GJ/d at Parkway  
18 on design day with a minimum three-year renewable term to ensure that if the service  
19 was cancelled, Enbridge Gas would have sufficient lead time to apply to the OEB for  
20 leave to construct a facility alternative that would provide the requisite firm Dawn  
21 Parkway System transmission capacity.  
22

1 This alternative was dismissed as a viable non-facility alternative for the following  
2 reasons:

- 3 • Contracting a winter peaking transportation service year-to-year is not  
4 appropriate as the required capacity may not be available in any given year.  
5 There may not be sufficient time to build the required facilities to meet design day  
6 demand and maintain continued safe and reliable service;
- 7 • Pricing for this type of service is market based. This creates significant cost risk  
8 as marketers will price the service at the maximum market opportunity price  
9 including significant premiums for holding capacity in reserve for peak/design  
10 days;
- 11 • To purchase a firm delivered service or exchange service at Parkway from a  
12 third-party would require that party to hold a firm transportation asset with  
13 Parkway as the primary delivery point. Any other delivery point would rely on  
14 diversions which are interruptible and therefore not as reliable as firm.

15

16 Winter peaking transportation service was rejected as an alternative to firm Dawn  
17 Parkway System transmission capacity as in comparison it is not economically viable,  
18 provides limited price certainty and is not commercially available on a long-term basis.

19

20

1       iv) **Integrated Resource Planning**

2       As directed by the OEB in 2018, EGD and Union jointly engaged ICF to conduct an IRP  
3       Study.<sup>13</sup> The IRP Transition Plan and an executive summary of the IRP Study were filed  
4       by EGD and Union as part of their respective submissions in the OEB's DSM Mid-term  
5       review.<sup>14</sup>

6  
7       The primary focus of the IRP Study was to evaluate the potential for geographically  
8       targeted DSM ("Geo-targeted DSM" or "enhanced targeted energy efficiency" both of  
9       which are IRP Alternatives or "IRPAs" as explained at Exhibit A, Tab 13) to impact the  
10      peak hour demand which drives the need for distribution facilities. ICF stated, while  
11      Geo-targeted DSM could notionally affect the need for transmission assets upstream of  
12      the distribution system,<sup>15</sup> the IRP Study did not evaluate the impacts of Geo-targeted  
13      DSM on natural gas storage infrastructure or upstream transmission infrastructure.<sup>16</sup>

14  
15      As set out at Table 7-2, without the proposed Project, Enbridge Gas forecasts a Dawn  
16      Parkway System shortfall for winter 2021/2022 of 120,776 GJ/d, increasing to a shortfall  
17      for winter 2022/2023 of 164,798 GJ/d. Reducing 92,174 GJ/d of this shortfall would  
18      require design day demand reduction through the successful implementation of  
19      incremental IRPAs; roughly equivalent to eliminating 93% of the entire design day

---

<sup>13</sup> EB-2015-0029/49, Decision and Order, January 20, 2016, p. 84.

<sup>14</sup> EB-2017-0128, Part Two Requirement Two Submission, January 15, 2018, Section 7; EB-2017-0127, Part Two Requirement Two Submission, January 15, 2018, Section 8.

<sup>15</sup> Exhibit I.EGDI.SEC.1, Attachment 1, October 11, 2018, pp. 2-3.

<sup>16</sup> IBID

1 demand for the City of Guelph within two years. This is not a reasonable solution for  
2 several reasons, including:

- 3 1. Such IRPAs would be specific to addressing winter 2021/2022 and/or winter  
4 2022/2023 design day demand shortfall. Design day demand growth forecasted  
5 in subsequent years would require commensurate incremental IRPAs sufficient  
6 to reduce demand growth or expansion of the Dawn Parkway System  
7 (specifically, construction of the proposed Project).
- 8 2. This solution assumes that all forecasted energy savings from incremental IRPAs  
9 are realized; it is impossible to guarantee that this will occur, and should the  
10 savings not be realized the window to construct the proposed Project would have  
11 passed, forcing Enbridge Gas to purchase alternative solutions at a cost  
12 premium.
- 13 3. As stated in response to interrogatories in the Enbridge Gas Stratford  
14 Reinforcement Project proceeding,<sup>17</sup> the current lack of information on the ability  
15 of natural gas DSM programs to impact peak demand makes it impossible to  
16 know with certainty when a DSM program needs to be implemented and how  
17 long the program needs to be in operation to successfully delay or avoid an  
18 infrastructure project. This is true for IRPAs generally. Enbridge Gas anticipates  
19 that most IRPAs will require two to four years of verified effectiveness to reduce  
20 demand growth sufficient to allow a facility expansion/reinforcement investment  
21 to be deferred. For an IRPA to defer an infrastructure project, the results of the

---

<sup>17</sup> EB-2018-0306, Exhibit B.Staff.3.

1 IRPA would need to be in place with sufficient reliability to ensure that the new  
2 facility will not be required to meet demand. Generally, this would require a  
3 successful evaluation of IRPA results prior to the time of the leave to construct  
4 filing. Given the need to evaluate the impacts of the IRPA, the program would  
5 need to be completed or demonstrating measurable results, at least three years  
6 prior to the date at which the additional capacity provided by the infrastructure  
7 project was initially projected to be required. Hence, a successful IRPA would  
8 need to be approved and put into motion no less than four years prior to the  
9 expected in-service date of the preferred facility alternative.

10  
11 Further, as set out at Exhibit A, Tab 13, the cost of IRPAs compared to the proposed  
12 Project, are uneconomic. Based on these considerations, IRPAs are not viable  
13 alternatives to the construction of the proposed Project, though it is possible that they  
14 may be effective at reducing peak period demands sufficiently in the future to defer or  
15 avoid facility expansion/reinforcement projects.

16  
17 In support of the conclusion that it is not reasonable or economic to plan, implement,  
18 administer, measure and verify IRPAs to offset the design day demand driving the need  
19 for the proposed Project for November 2021, Enbridge Gas has included an IRP  
20 Proposal as a separate and distinct Tab of evidence at Exhibit A, Tab 13. The IRP  
21 Policies set out in the IRP Proposal are generally intended to be applicable to all forms  
22 of expansion/reinforcement projects.

1 **Facility Alternatives**

2 The facility alternatives considered for a November 1, 2021 in-service date include  
3 pipeline looping between Dawn and Parkway, an additional unit at Lobo, Bright, or  
4 Parkway compressor stations, and a New Liquefied Natural Gas Plant. The following  
5 facilities (listed in no particular order) were included in the capacity analysis:

6

7 Pipeline and Compression Options

- 8 • Lobo E Compression (44,500 ISO HP);
- 9 • Bright D Compression (44,500 ISO HP);
- 10 • Parkway E Compression (44,500 ISO HP);
- 11 • Dawn to Enniskillen NPS 48 Pipeline (17.1 km);
- 12 • Lobo to London North NPS 48 Pipeline (16.9 km);
- 13 • Bright to Owen Sound NPS 48 Pipeline (17.7 km);
- 14 • Kirkwall to Hamilton NPS 48 Pipeline (10.1 km);
- 15 • Milton to Parkway NPS 48 Pipeline (8.7 km); and
- 16 • New Liquefied Natural Gas Plant.

17

18 Each of the above facilities was analyzed to determine capacity increase on the Dawn  
19 Parkway System. The results of that analysis, including the proposed facilities and the  
20 four next best alternatives, are shown in Table 7-3 ranked by lowest cost per unit of  
21 capacity.

22

1  
2

**Table 7-3**  
**Relative Economics of Facility Alternatives**

Alternative	Additional Capacity (GJ/d)	Capital Cost (\$ Million) <sup>18</sup>	Cost per Unit of Capacity (\$/GJ/d)
NPS 48 Kirkwall to Hamilton Pipeline	92,174	204	2,213
New Liquefied Natural Gas Plant <sup>19</sup>	92,174	259	2,810
NPS 48 Milton to Parkway Pipeline	76,743	216	2,815
Parkway E Compressor	58,413	179	3,064
NPS 48 Dawn to Enniskillen Pipeline	52,230	275	5,265

3

4 **New Liquefied Natural Gas Plant**

5 Enbridge Gas considered constructing a new LNG plant located near Parkway and  
 6 rejected the option because it is not economically feasible. To replace the capacity  
 7 generated by the proposed Kirkwall to Hamilton pipeline, the LNG plant would need to  
 8 meet 92,174 GJ/d of incremental system capacity. The cost estimate for a project of  
 9 this size, excluding the cost of lands to site the facility at Parkway, was estimated at  
 10 approximately \$259 million with approximately \$4.5 million in annual operating  
 11 expenses. Given the magnitude of these costs, Enbridge Gas does not consider  
 12 constructing a new LNG plant to be a viable alternative to the proposed Project.

13

14 **5. Proposed Facilities**

15 The proposed Project is the Kirkwall to Hamilton pipeline. This facility provides  
 16 92,174 GJ/d of capacity at an estimated capital cost of \$203.5 million making it the most

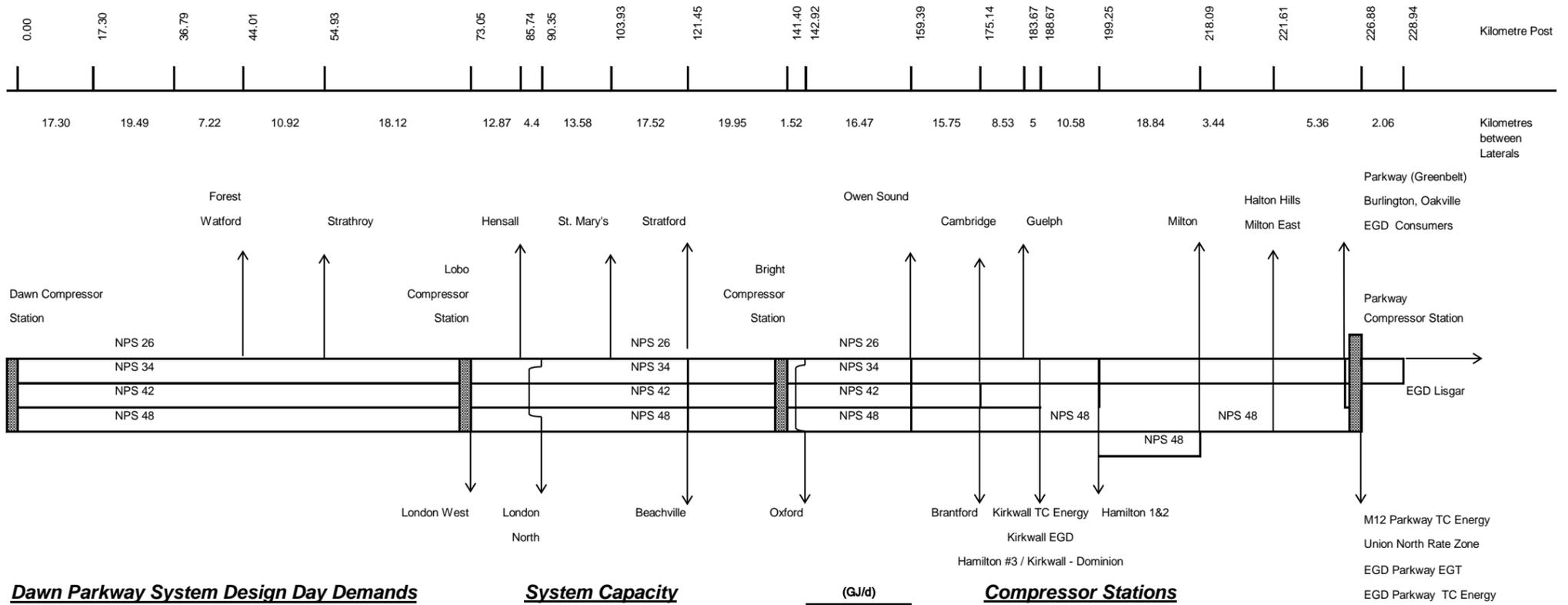
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<sup>18</sup> Capital costs reflect current estimates.

<sup>19</sup> Cost for new LNG plant excludes any estimate of the cost of lands at Parkway and operation and maintenance costs.

1 economic facility alternative to serve forecasted demand. The Kirkwall to Hamilton  
2 pipeline begins at the Kirkwall Valve Site located in Lot 25, Concession 7, in the former  
3 Township of Flamborough, in the city of Hamilton and ends at the Hamilton Valve Site  
4 located northeast of the intersection of Highway 6 and Carlisle Road, in the former  
5 Township of Flamborough East, in the City of Hamilton. Please see Exhibit A, Tab 9, for  
6 additional detail regarding engineering and construction of the Project.

**Dawn Parkway System Demands Winter 2019/2020**



**Dawn Parkway System Design Day Demands**

Infranchise	(GJ/d)
<b>Union South Rate Zone</b>	
Forest, Watford	10622
Strathroy	10175
London West	117798
Hensall	68639
London North	108672
St. Mary's	8084
Stratford	42177
Beachville	63135
Oxford	58133
Owen Sound	283633
Cambridge	83902
Brantford	154140
Kirkwall - Dominion	35296
Guelph	95454
Hamilton 3	12605
Hamilton 1&2	333696
Milton	75490
Milton East	7852
Halton Hills	135650
Parkway (Greenbelt)	26276
Burlington, Oakville	170807
<b>Total Union South Rate Zone</b>	<b>1,902,235</b>
<b>Union North Rate Zone</b>	<b>438,019</b>
<b>EGD Rate Zone</b>	
Kirkwall	67929
Parkway EGT	818934
Consumers 1 and 2 / Lisgar	1238085
Parkway TC Energy	935154
<b>Total EGD Rate Zone</b>	<b>3,060,102</b>
<b>M12 Exfranchise</b>	
Kirkwall	49,500
Parkway TC Energy	2,412,957
<b>Total M12</b>	<b>2,462,457</b>
<b>Total Design Day Demands</b>	<b>7,862,813</b>

**System Capacity**

	(GJ/d)
<b>Total System Capacity</b>	<b>7,878,469</b>
(Including Firm Service Receipts of 240,738 GJ/d)	
<b>Total Requirements</b>	<b>7,862,813</b>
<b>Total (Shortfall) Surplus</b>	<b>15,656</b>

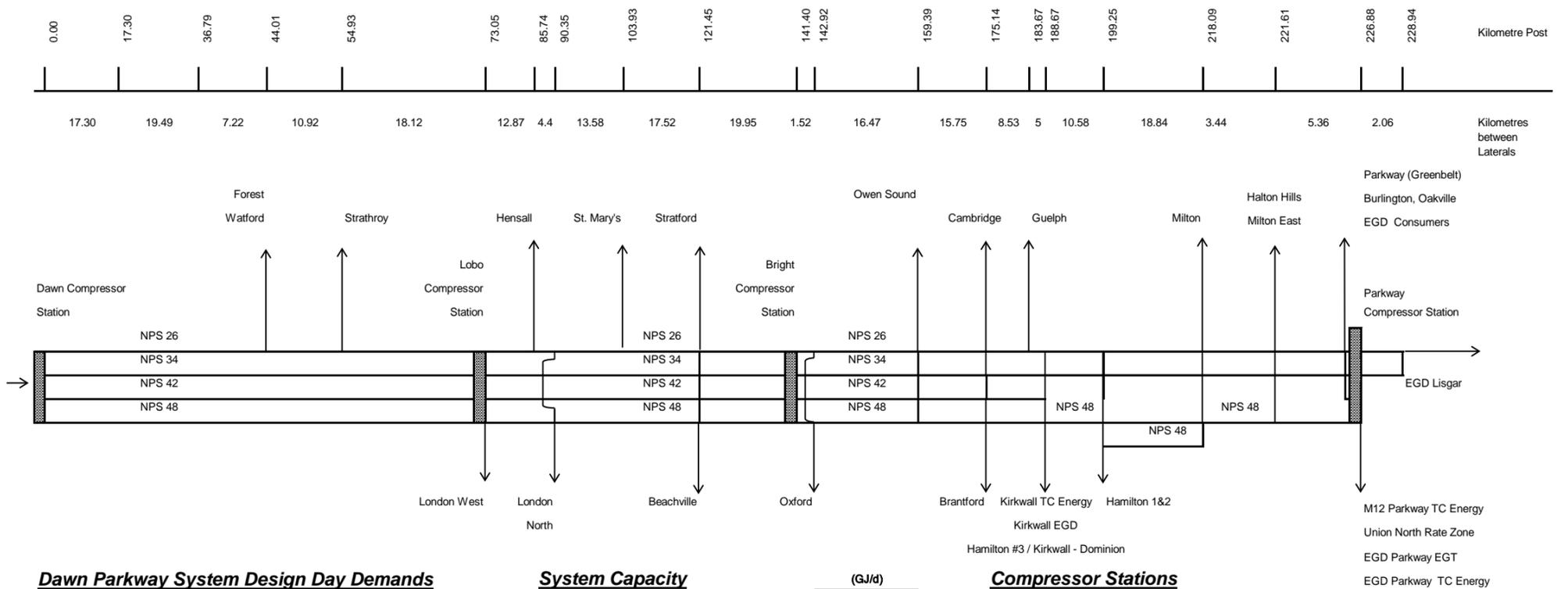
**Compressor Stations**

**Operating Conditions at Peak Hour**

STATION	LOBO	BRIGHT	PARKWAY
Power Available (MW)	102.9	129.0	88.1
Power Required (MW)	102.9	129.0	88.0
Pressure			
Suction (kPa)	3,751	3,509	3,694
Discharge (kPa)	5,527	5,980	6,453
Compression Ratio	1.47	1.70	1.75
Flow (GJ/d)	7,265,020	7,085,069	4,409,654
Daily Fuel (GJ/d)	30,476	29,262	18,661

**Winter Design Day  
 Dawn Parkway System  
 Winter 2019/2020**

**Dawn Parkway System Demands Winter 2020/2021**



**Dawn Parkway System Design Day Demands**  
**Infranchise**

	(GJ/d)
<b>Union South Rate Zone</b>	
Forest, Watford	10697
Strathroy	10246
London West	121268
Hensall	69588
London North	111873
St. Mary's	8132
Stratford	42473
Beachville	63714
Oxford	58666
Owen Sound	285922
Cambridge	84952
Brantford	155555
Kirkwall - Dominion	35620
Guelph	96555
Hamilton 3	12838
Hamilton 1&2	339867
Milton	76421
Milton East	7949
Halton Hills	135650
Parkway (Greenbelt)	26600
Burlington, Oakville	172913
<b>Total Union South Rate Zone</b>	<b>1,927,499</b>
<b>Union North Rate Zone</b>	<b>440,078</b>
<b>EGD Rate Zone</b>	
Kirkwall	67929
Parkway EGT	818934
Consumers 1 and 2 / Lisgar	1238085
Parkway TC Energy	935154
<b>Total EGD Rate Zone</b>	<b>3,060,102</b>
<b>M12 Exfranchise</b>	
Kirkwall	49,500
Parkway TC Energy	2,468,686
<b>Total M12</b>	<b>2,518,186</b>
<b>Total Design Day Demands</b>	<b>7,945,865</b>

**System Capacity**

	(GJ/d)
<b>Total System Capacity</b>	<b>7,886,473</b>
(Including Firm Service Receipts of 236,983 GJ/d)	
<b>Total Requirements</b>	<b>7,945,865</b>
<b>Total (Shortfall) Surplus</b>	<b>-59,392</b>

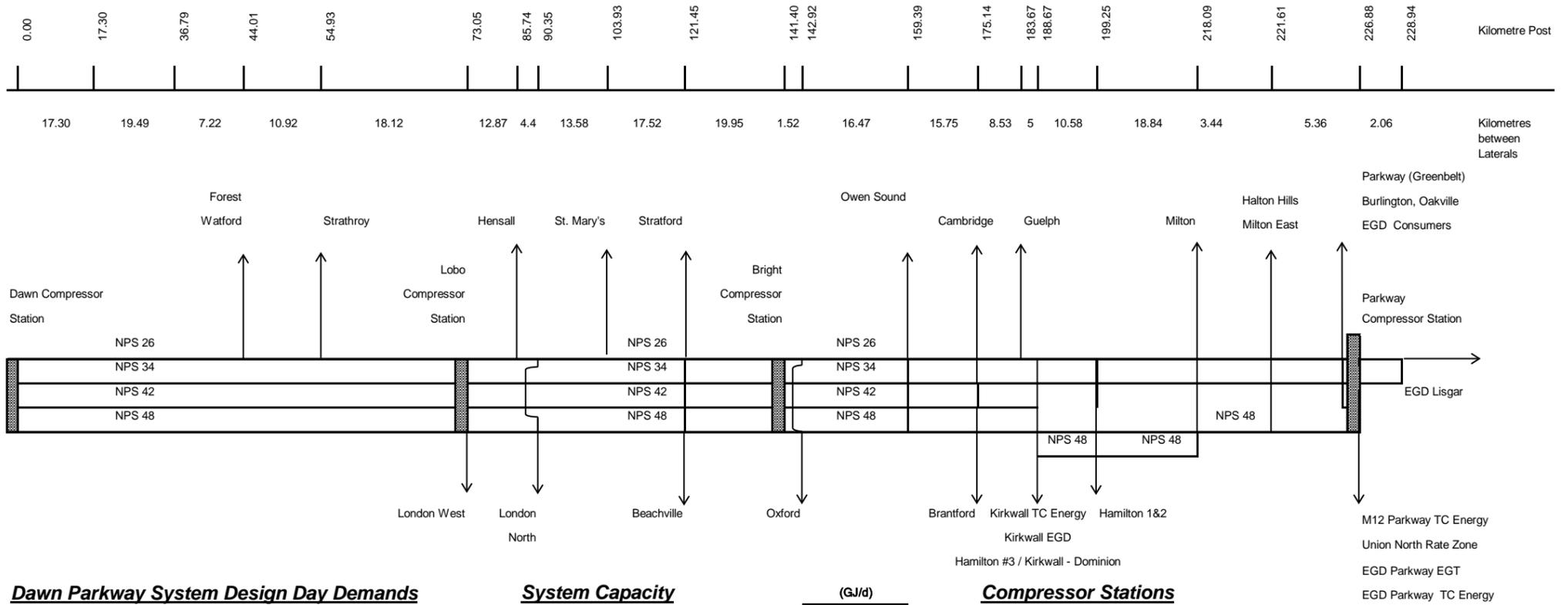
**Compressor Stations**

**Operating Conditions at Peak Hour**

STATION	LOBO	BRIGHT	PARKWAY
Power Available (MW)	102.9	129.0	88.1
Power Required (MW)	102.9	129.0	88.1
Pressure			
Suction (kPa)	3,730	3,506	3,685
Discharge (kPa)	5,527	5,870	6,453
Compression Ratio	1.48	1.67	1.75
Flow (GJ/d)	7,283,307	7,079,557	4,396,176
Daily Fuel (GJ/d)	30,476	29,151	18,551

**Winter Design Day  
 Dawn Parkway System  
 Winter 2020/2021**

**Dawn Parkway System Demands Winter 2021/2022**



**Dawn Parkway System Design Day Demands**

Infranchise	(GJ/d)
<b>Union South Rate Zone</b>	
Forest, Watford	10788
Strathroy	10314
London West	121970
Hensall	70123
London North	112521
St. Mary's	8179
Stratford	42836
Beachville	64259
Oxford	59168
Owen Sound	288165
Cambridge	85791
Brantford	156885
Kirkwall - Dominion	35924
Guelph	97635
Hamilton 3	12979
Hamilton 1&2	343574
Milton	77318
Milton East	8042
Halton Hills	135650
Parkway (Greenbelt)	26912
Burlington, Oakville	174942
<b>Total Union South Rate Zone</b>	<b>1,943,974</b>
<b>Union North Rate Zone</b>	<b>450,766</b>
<b>EGD Rate Zone</b>	
Kirkwall	67929
Parkway EGT	818934
Consumers 1 and 2 / Lisgar	1238085
Parkway TC Energy	1060154
<b>Total EGD Rate Zone</b>	<b>3,185,102</b>
<b>M12 Exfranchise</b>	
Kirkwall	49,500
Parkway TC Energy	2,379,958
<b>Total M12</b>	<b>2,429,458</b>
<b>Total Design Day Demands</b>	<b>8,009,300</b>

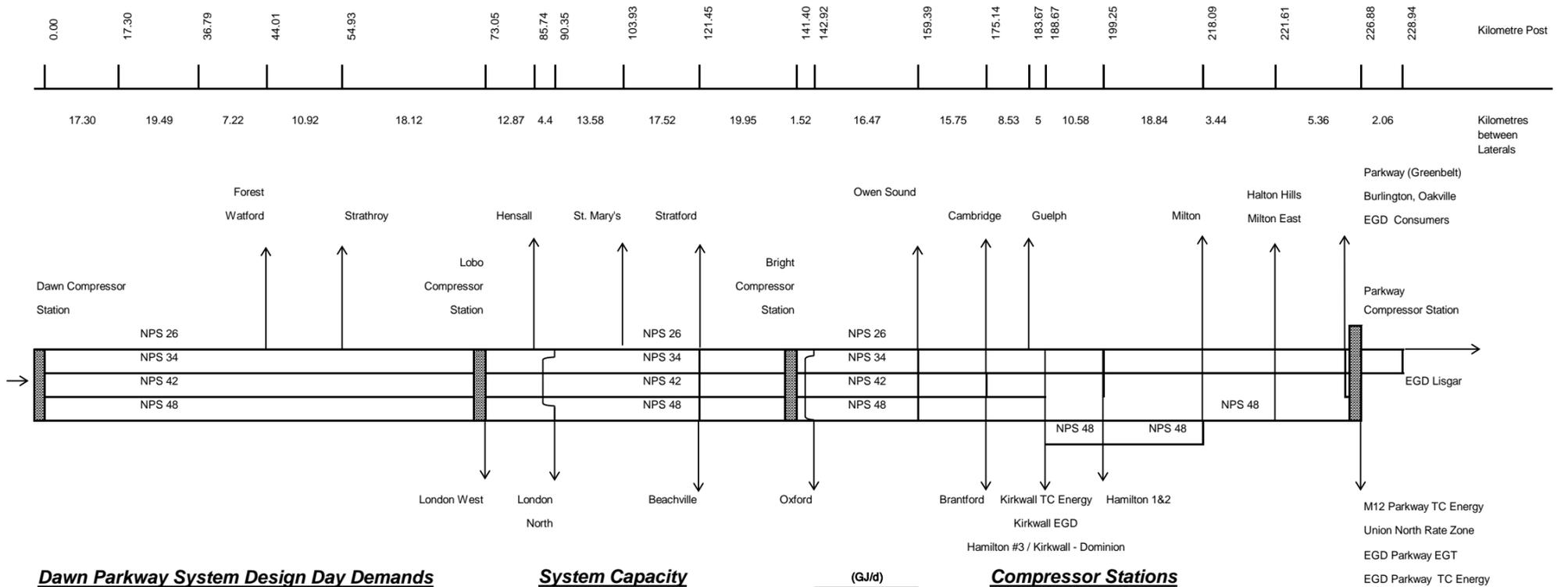
<b><u>System Capacity</u></b>	<b>(GJ/d)</b>
<b>Total System Capacity</b>	<b>7,980,698</b>
(Including Firm Service Receipts of 234,522 GJ/d)	
<b>Total Requirements</b>	<b>8,009,300</b>
<b>Total (Shortfall) Surplus</b>	<b>-28,602</b>

**Winter Design Day  
 Dawn Parkway System  
 Winter 2021/2022**

**Compressor Stations  
 Operating Conditions at Peak Hour**

STATION	LOBO	BRIGHT	PARKWAY
Power Available (MW)	102.9	129.0	88.1
Power Required (MW)	102.9	129.0	88.1
Pressure			
Suction (kPa)	3,740	3,447	3,732
Discharge (kPa)	5,513	5,781	6,453
Compression Ratio	1.47	1.68	1.73
Flow (GJ/d)	7,321,704	6,954,759	4,476,382
Daily Fuel (GJ/d)	30,476	31,029	18,109

**Dawn Parkway System Demands Winter 2022/2023**



**Dawn Parkway System Design Day Demands**  
**Infranchise**

	(GJ/d)
<b>Union South Rate Zone</b>	
Forest, Watford	10860
Strathroy	10383
London West	122675
Hensall	70571
London North	113171
St. Mary's	8226
Stratford	43120
Beachville	64831
Oxford	59695
Owen Sound	290358
Cambridge	86610
Brantford	158282
Kirkwall - Dominion	36244
Guelph	98691
Hamilton 3	13098
Hamilton 1&2	346729
Milton	78242
Milton East	8138
Halton Hills	135650
Parkway (Greenbelt)	27234
Burlington, Oakville	177033
<b>Total Union South Rate Zone</b>	<b>1,959,841</b>
<b>Union North Rate Zone</b>	<b>453,611</b>
<b>EGD Rate Zone</b>	
Kirkwall	67929
Parkway EGT	818934
Consumers 1 and 2 / Lisgar	1238085
Parkway TC Energy	1069420
<b>Total EGD Rate Zone</b>	<b>3,194,368</b>
<b>M12 Exfranchise</b>	
Kirkwall	49,500
Parkway TC Energy	2,399,629
<b>Total M12</b>	<b>2,449,129</b>
<b>Total Design Day Demands</b>	<b>8,056,949</b>

**System Capacity**

	(GJ/d)
<b>Total System Capacity</b>	<b>7,984,325</b>
(Including Firm Service Receipts of 235,331 GJ/d)	
<b>Total Requirements</b>	<b>8,056,949</b>
<b>Total (Shortfall) Surplus</b>	<b>-72,624</b>

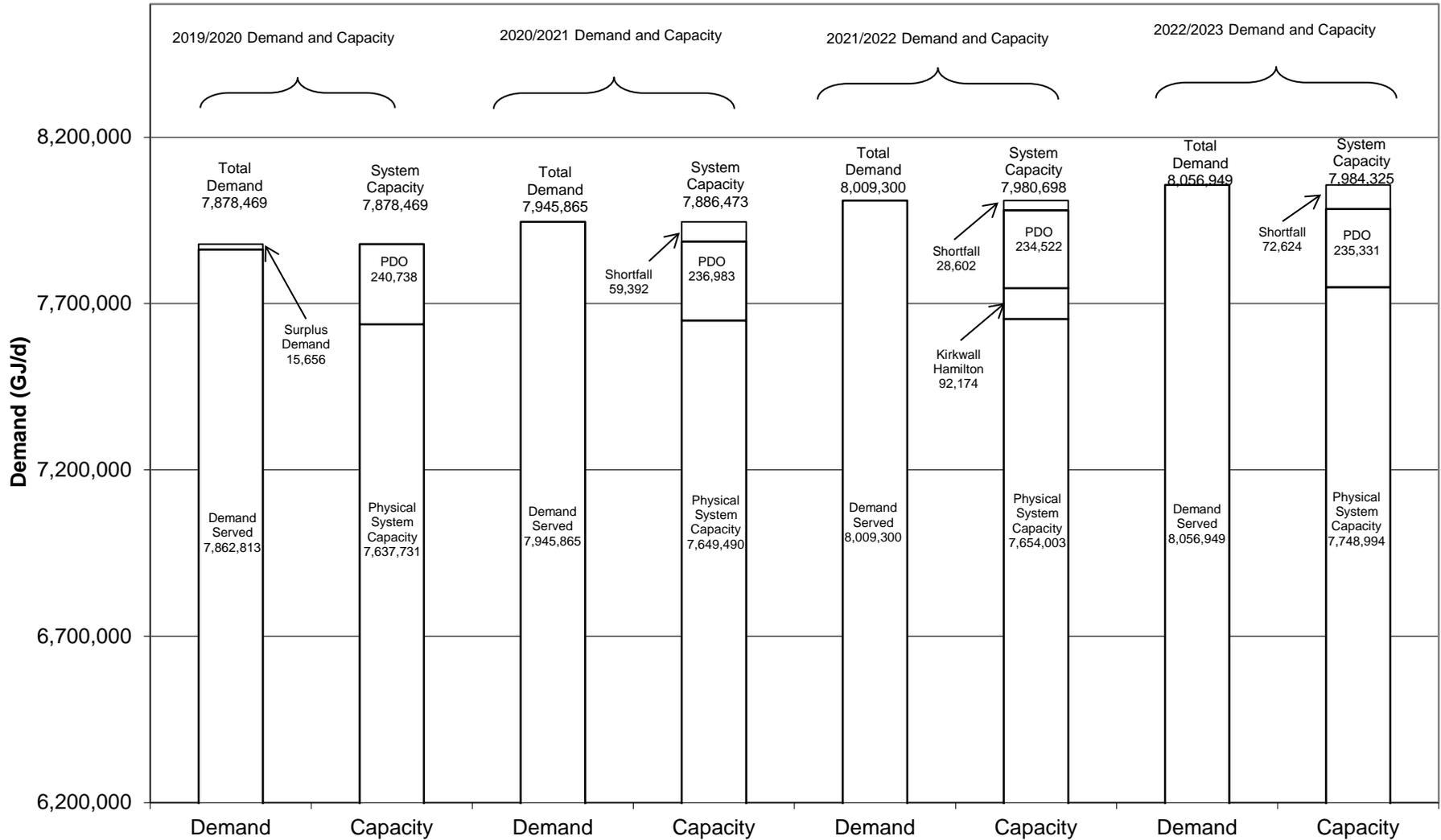
**Compressor Stations**

**Operating Conditions at Peak Hour**

STATION	LOBO	BRIGHT	PARKWAY
Power Available (MW)	102.9	129.0	88.1
Power Required (MW)	102.9	129.0	88.1
Pressure			
Suction (kPa)	3,740	3,447	3,724
Discharge (kPa)	5,512	5,773	6,453
Compression Ratio	1.47	1.68	1.73
Flow (GJ/d)	7,322,355	6,949,559	4,463,342
Daily Fuel (GJ/d)	30,476	30,918	18,109

**Winter Design Day  
 Dawn Parkway System  
 Winter 2022/2023**

### Dawn-Parkway System Design Day Demands and Capacity



# Dawn Parkway Transmission System

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Review of System Design  
14 June 2019



## 1. Purpose of This Document

This document provides detail on the criteria used to review the Enbridge Gas Dawn Parkway transmission system to determine if the existing facilities are adequate from a capacity and reliability standpoint to service forecast Design Day demands of the in-franchise and ex-franchise customers. This report is updated using the available customer growth forecasts, and will be used to properly select the preferred option which best meets the current and forecast system demands. The option may include construction of new facilities or contracting of commercial services.

The system review process is comprised of a number of distinct sections including the following:

- Review of the Physical System
- Forecast of Design Day Demand
- System Operating Criteria
- System Capacity
- Selection of Future Facilities

The creation of this report results in the selection of the best solution for meeting forecast Design Day demands, both in the short and long-term, with a focus on minimizing cost to ratepayers and maximizing system reliability.

## 2. Review of the Physical System

The physical system is composed of pipelines, regulation and meter stations and compressor stations. The physical system moves gas to delivery locations along the pipeline to meet the volumetric demands and pressure requirements of Enbridge Gas customers. The pipeline system forms the foundation for future development as customer's needs grow.

Enbridge Gas has three transmission<sup>1</sup> systems 1) Dawn Parkway, 2) Panhandle and 3) Sarnia Industrial. A map showing the location of the transmission systems is shown in Schedule 1. The remainder of this document will focus exclusively on the Dawn Parkway transmission system.

### 2.1. DAWN PARKWAY

The Dawn Parkway System is comprised of a series of parallel pipelines, compressor stations and regulation and meter stations. The system starts at the Dawn compressor station near Sarnia and extends to the Parkway compressor station and Lisgar regulation and meter station in Mississauga. For clarity, this section is split into the major physical components; Pipelines, Compressor Stations, Supply and Delivery Locations.

### 2.2. PIPELINES

The Dawn Parkway System consists of 4 parallel pipelines; 26, 34, 42, and 48 inch diameter. The 26, 34 and 48 inch diameter pipelines run the entire distance between Dawn and Parkway. The 42 inch runs from Dawn to Kirkwall. A second 48 inch has been constructed between Hamilton and Milton.

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<sup>1</sup> Other Enbridge Gas departments including Pipeline Engineering and Plant Accounting have different definitions of what is considered a transmission pipeline. In this document the Transmission systems or pipelines refer to the pipelines modelled by the Transmission Optimization & Engineering Department.

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The Dawn Parkway System continues downstream of Parkway with a 42 inch diameter pipeline that runs between Parkway and Albion Road Station in Toronto<sup>2</sup>

Details of the existing pipeline sections are shown below.

SECTION	NOMINAL PIPE SIZE (IN)	LENGTH (KM)	OUTSIDE DIAMETER (MM)
Dawn to Lisgar	26	229	660
Dawn to Lisgar	34	229	864
Dawn to Kirkwall	42	189	1067
Dawn to Parkway	48	229	1219
Hamilton to Milton	48	19.5	1219
Parkway to Albion	42	27	1067

The remaining “4<sup>th</sup> Loop” sections to be constructed in the future are:

SECTION	NOMINAL PIPE SIZE (IN)	LENGTH (KM)	OUTSIDE DIAMETER (MM)
Kirkwall to Hamilton	48	10	1219
Milton to Parkway	48	9	1219

Enbridge Gas will perform a 5<sup>th</sup> line study to determine options for future pipeline sections to meet increasing system market demands.

The flow of gas on the Dawn Parkway System, on Design Day, is easterly from Dawn towards Parkway.

### 2.3. COMPRESSOR STATIONS

Compressor stations are integral to the operation of the Dawn Parkway System. The compressor stations are located at specific points on the system to increase the overall transmission system capacity. In addition to the Dawn compressor station, which provides supply to the Dawn Parkway System, there are three mainline compressor stations located at Lobo, Bright, and Parkway.

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<sup>2</sup> Although the GTA Line which connects Albion Road Station is a component of the contiguous Dawn Parkway System, EGI has not yet incorporated this facility into its Dawn Parkway System operations or capacity models. EGI expects that future Dawn Parkway System Leave To Construct applications will include further consideration of these facilities.

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Details of the mainline compressor stations are shown below:

COMPRESSOR STATION	KILOMETER POST	UNIT	ISO RATING (MW)
Lobo	73	A1	16.5
		A2	15.3
		B	26.1
		C	33.2
		D	33.2
		<b>TOTAL</b>	<b>124.3</b>
Bright	141	A1	28.0
		A2	28.0
		B	26.1
		C	33.2
		<b>TOTAL</b>	<b>115.3</b>
Parkway	229	A1	16.5
		B	32.9
		C	33.2
		D	33.2
		<b>TOTAL</b>	<b>115.8</b>

Notes:

- Kilometer post denotes the distance from Dawn to the specific delivery location in kilometers
- ISO (International Standards Organization) rating refers to available power of a unit at specific standard conditions (an intake air temperature of 15 °C, barometric pressure of 101.325 kPa and no inlet or outlet losses). These ratings are provided by the Original Equipment Manufacturer.

The compressor stations at Dawn, Lobo, Bright and Parkway have Loss of Critical Unit (LCU) coverage. Please see section 4.3 for additional information.

## 2.4. SUPPLY AND DELIVERY LOCATIONS

There are specific delivery locations along the system between Dawn and Lisgar which are connected to downstream Enbridge Gas distribution systems in Union South and EGD Rate Zones<sup>3</sup> or ex-franchise customers' pipeline systems. At these locations gas is delivered to Enbridge Gas in-franchise and ex-

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<sup>3</sup> Other Enbridge Gas departments including Pipeline Engineering and Plant Accounting have different definitions of what is considered a distribution pipeline. In this document the distribution systems or pipelines refer to the systems planned and modelled by the Network Analysis Department and fed from the Transmission systems as modelled by the Transmission Optimization & Engineering Department.

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franchise (M12) customers. The following table summarizes the delivery locations, distance from Dawn and the in-franchise area or ex-franchise customer supplied for each location.

LATERAL	KILOMETER POST	AREA / SYSTEM SERVED
Forest	44.01	Forest, Thedford, Parkhill
Strathroy	54.93	Strathroy
London West / Byron	73.05	London, St Thomas
Hensall	85.74	London, Lucan, Exeter, Hensall
London North	90.35	London
St Mary's	103.93	St Mary's
Stratford	121.45	Stratford, Mitchell, Wingham, Goderich
Beachville	121.45	Ingersoll, Woodstock, Tillsonburg
Oxford	142.92	Woodstock, Paris
Owen Sound	159.39	Waterloo, Kitchener, Owen Sound
Cambridge	175.14	Cambridge
Brantford	175.14	Brantford
Guelph	183.67	Guelph
Kirkwall	188.67	Niagara (Enbridge CDA), M12 (TC Energy and others)
Kirkwall Dominion	188.67	Caledonia, Hagersville, Nanticoke
Hamilton 3	188.67	Hamilton, Stoney Creek
Hamilton 1 & 2	199.25	Hamilton, Burlington
Milton	218.09	Milton, Burlington
Halton Hills	221.61	Halton Hills, Milton
Burlington Oakville	228.94	Burlington, Oakville
Greenbelt	228.94	Georgetown, Acton, Oakville
Parkway Cons / Lisgar	228.94	Toronto GTA (Enbridge CDA)
Parkway Discharge	228.94	Union North (Union NDA/EDA), GTA West & Niagara and GTA EAST (Enbridge CDA), and M12 (TC Energy & others)
Albion	255.94	Toronto GTA (Enbridge CDA)

Note: Kilometer post denotes the distance from Dawn to the specific delivery location in kilometers.

The Dawn Compressor Station is the main source of supply to the Dawn Parkway System. Supply is also received at Parkway and Kirkwall, which reduces the need for Dawn supply. There is also a small amount of storage and production gas which feeds into the system.



### 3. Forecast of Design Day Demand

Enbridge Gas has a requirement to provide reliable service to its customers on a very cold day called the Design Day. The Design Day demand is the firm volumetric amount of natural gas that is consumed by the in-franchise and ex-franchise customers on the Design Day.

The majority of the customers, both in-franchise and ex-franchise, served by the transmission systems are heat sensitive and their maximum demands occur during a very cold winter day. Enbridge Gas plans its facilities to meet the demands on this very cold day, defined to be the Design Day.

Calculating the Design Day demand requires customer consumption and weather history.

#### 3.1. WEATHER CONDITION

The Design Day weather condition for the Union South Rate Zone is 43.1 Degree Days (43.1 DD), which represents an average daily temperature of -25.1 degrees centigrade. This temperature is the coldest historical based upon the weather data for the London Airport which consists of recorded temperature and wind speeds from 1953 to 2019. From this data, Enbridge Gas has found the likelihood of a 43.1DD occurring over the course of a winter is a reasonable assumption, with the highest probability of occurrence in mid-January to mid-February. Using the 43.1DD ensures Enbridge Gas Union South Rate Zone customers can continue to be reliably served during the coldest winters.

The Union North and EGD Rate Zones can be reliably served based on the Degree Days selected for those regions. For additional information regarding Degree Day values for Union North and EGD Rate Zones, refer to EB-2019-0137 Enbridge Gas Inc. – 5 Year Gas Supply Plan on pages 34-35 and 74-75.

#### 3.2. DESIGN DAY DEMAND

The Design Day demand is defined as the amount of firm demand that Enbridge Gas is committed to supply through its systems on a Design Day. The total Design Day demands for the transmission systems are the sum of the firm demands of Enbridge Gas in-franchise customers connected to the transmission systems in the Union South Rate Zone, plus the demands transported to serve the EGD and Union North Rate Zones, as well as any firm easterly ex-franchise Dawn Parkway System customer demands. Interruptible demand is curtailed on Design Day. Ex-franchise demand flowing counter to the flow direction of the transmission systems are not included for Design Day analysis.

##### 3.2.1. In-franchise Demand (Union South) – Transmission System

Union South Rate Zone in-franchise customers are served by laterals connected to and located along the transmission systems.

Enbridge Gas has a process to develop the Design Day demand which provides a reliable, repeatable and predictable way to generate base customer consumption for the transmission system. Once the demand has been determined it is assigned to the customer location. The base demand is calculated once the winter heating season is completed at the end of March. Corporate forecasts are added to the base demands to predict future customer consumption.

The transmission system in-franchise Design Day demand for Union South Rate Zone is the sum of the Design Day general service demand plus the Design Day demand of the firm contract customers. All interruptible in-franchise contract customers are curtailed for the Design Day condition and not included in the Design Day demand.

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Schedule 2 outlines the process that Enbridge Gas uses to develop the Transmission Load Forecast for Design Day demand for its Union South Rate Zone in-franchise customers.

#### **3.2.1.1. General Service**

Enbridge Gas develops its base year general service Design Day demands from a regression analysis of actual measured demands and degree days from the previous winter season. These regression analyses are segmented based on geography and downstream distribution systems.

Based on further analysis of the general service customer's demands, Enbridge Gas has found a gradual downward trend in the Design Day use per general service customer. A regression line has been calculated from this data and the base year Design Day demands are adjusted to fit the line.

Growth rates for the general service customers are developed by the Network Analysis department to account for the forecast addition of new customers, as part of their Facilities Business Plans. General Service volumes are analyzed by operating region over a 20 year period, identifying when and where system load is increasing. The growth rates are applied to the base year Design Day demands for each lateral.

#### **3.2.1.2. Contract Rate**

Enbridge Gas develops its base year contract rate Design Day demands from a regression analysis of actual measured demands and degree days from the previous season and daily contracted demand. These regression analyses are segmented based on rate class, heat sensitivity, geography and downstream distribution systems. Contract rate customer contracted demands (CD) are used to guide the selection of appropriate design volumes for these customers.

Growth rates for the contract rate customers are developed by the Utility Revenue department to account for the addition of new customers and changes to the requirements of existing customers. The growth rates are customer specific and assigned to specific customer locations on the transmission systems.

### **3.2.2. In-franchise Demand (Union North)**

The Gas Supply Plan determines the Design Day transportation requirement on the Dawn Parkway system for Union North Rate Zone in-franchise customers. The design day demands are calculated using a similar process to the Union South Rate Zone and is described in EB-2019-0137 Enbridge Gas Inc. – 5 Year Gas Supply Plan.

### **3.2.3. In-franchise Demand (EGD)**

The Gas Supply Plan determines the Design Day transportation requirement on the Dawn Parkway System for EGD Rate Zone in-franchise customers. Legacy Enbridge contracted for Dawn Parkway System transportation through M12 contracting services and the volume equivalent of these contracts is being transported for EGD Rate Zone customers on Design Day. The design day demands for EGD rate zone is described in EB-2019-0137 Enbridge Gas Inc. – 5 Year Gas Supply Plan.

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### 3.2.4. Ex-franchise Design Day Demand

The ex-franchise customers also have a Design Day demand. This group of customers has made a conscious decision to contract for a specific level of transportation service on the Dawn-Parkway system. Enbridge Gas has the contractual commitment and the customer has the contractual right to full contract demand on any day, including the Design Day. As a result, Enbridge Gas considers the Design Day demands for these customers to be equivalent to their full contract demand. Only easterly flowing contracts are considered for Design Day purposes as counter-flow (westerly) contracts are not guaranteed to flow on Design Day.

Enbridge Gas may require facilities to accommodate customer required counter-flow contracts to deliver their supply from the receipt point to Dawn during all times of the year.

Growth forecasts for ex-franchise customers are provided by the Energy Services department and are customer and path specific (for example: Dawn to Kirkwall, Dawn to Parkway and Kirkwall to Parkway).

### 3.2.5. System Supply

The main source of supply to all Enbridge Gas in-franchise and ex-franchise customer demand is Dawn Hub ("Dawn"). Dawn is a world class natural gas trading hub and the largest underground storage facility in Canada with over 280 Bcfd of high deliverability storage. Multiple pipelines converge at Dawn from all the major gas producing regions in North America.

At Dawn, near Sarnia, the Dawn Parkway System connects to a number of pipelines, including: Vector Pipeline L.P. ("Vector"), Panhandle Eastern Pipeline Company L.P. ("Panhandle Eastern") via the Enbridge Gas Panhandle system, Great Lakes Gas Transmission Pipeline ("GLGT") via Great Lakes Pipeline Canada ("GLC"), DTE Energy ("DTE") via St. Clair Pipelines L.P. ("St. Clair Pipelines"), Bluewater Gas Storage, LLC ("BGS") via Bluewater Pipeline (St. Clair Pipelines L.P.), and ANR via Niagara Gas Transmission Limited LINK Pipeline ("Niagara Link").

Enbridge Gas can also receive gas into the Dawn Parkway System from third party pipeline systems at Kirkwall, Parkway, Enbridge Gas Inc. (EGI) storage facilities directly connected to its transmission systems, and local producers.

At Kirkwall, Near Hamilton, the Dawn Parkway System connects to the TC Energy Canadian Mainline ("TC Energy Mainline") at the Kirkwall Custody Transfer Station ("Kirkwall"). This portion of the TC Energy Mainline, known as the Niagara Export Line, connects to the import/export points at Niagara and Chippawa at the Ontario/New York border.

At Parkway, the Dawn Parkway System connects to the TC Energy Mainline, at the Parkway compressor site at a delivery point referred to as Parkway (TCPL).<sup>4</sup>

Location of these supplies in relation to the transmission system and customers can increase the system capacity.

Enbridge Gas system supply is described in EB-2019-0137 Enbridge Gas Inc. – 5 Year Gas Supply Plan.

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<sup>4</sup> The TC Energy Domestic Line runs between Niagara interconnect point at Parkway (TC Energy). This pipeline can also be used to supply gas into the EGD and Union South Rate Zones.

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### **3.2.6. Obligated Deliveries at Parkway**

In the Gas Supply Plan, there are obligated deliveries (DCQ) delivered to Enbridge Gas for the Union South Rate Zone system supply and direct purchase customers. A portion of these volumes are required to be delivered at Parkway (Parkway Delivery Obligation or PDO) on the downstream side of the compressors (the other portion is obligated at Dawn (Dawn Obligation)). Enbridge Gas considers the PDO in the Design Day analysis of the Dawn Parkway System to reduce the physical transportation needs from Dawn to Parkway.

The PDO reduction available as a result of Dawn to Kirkwall turn back volume was reduced to zero effective in Winter 2018/2019 consistent with the OEB-approved settlement agreement (EB-2014-0365). There is no additional PDO reduction available as there is no future Dawn to Kirkwall turn back forecast.

#### **3.2.6.1. Parkway Delivery Obligation Benefit to Dawn Parkway System**

Historically, the majority of Union South Rate Zone in-franchise and direct purchase customers and Enbridge Gas purchased their gas supply in the Western Canadian Sedimentary Basin, with transportation contracted on TC Energy Mainline from Empress to Parkway. At the time the cost to transport gas to Parkway was less expensive than transporting gas to Dawn, so customers were obligated to deliver their supply gas to Parkway and thus had a PDO. Over time customers “West of Dawn” (i.e. Panhandle and Sarnia Industrial customers) were allowed to change their obligation to Dawn however customers that were “East of Dawn” or served by the Dawn Parkway System continued to have a PDO.

As the Dawn Parkway System was expanded, gas delivered to Parkway directly reduced the pipeline facilities required and as a result, the Dawn Parkway System is smaller today than if all customer gas was supplied from Dawn and had to be transported to Parkway.

#### **3.2.6.2. Parkway Delivery Obligation Settlement Agreement**

Due to turn back on the Dawn to Kirkwall path, Enbridge Gas used this surplus capacity to allow customers to have a higher proportion of their delivery obligation changed to Dawn. The PDO reduction available as a result of Dawn to Kirkwall turn back volume was reduced to zero effective Winter 2018/2019 consistent with the OEB-approved settlement agreement (EB-2014-0365). There is no additional PDO reduction available as there is no future Dawn to Kirkwall turn back forecast.

### **3.2.7. Hourly Demand Profile**

Enbridge Gas develops hourly demand profiles for the delivery locations on the Dawn Parkway System for Union South Rate Zone customers plus EGD Rate Zone customers served from delivery point Parkway-Uncompressed (Consumers 1 and 2, and Lisgar stations) which reflect the expected pattern of natural gas use during the Design Day. These patterns are mainly a result of temperature sensitive demand throughout the day, with highest usage in the morning around 8 am.

Profiles are developed for heat sensitive customers who do not generally consume natural gas at a constant rate during the day. With these customers, demand varies over the period of the day with higher consumption in the morning hours, lower in the early afternoon and an increase during the early evening. Customers who consume natural gas at a constant rate do not receive a profile.



The hourly demand profiles are developed from historical gate station data. The transient or Unsteady State modeling technique used by Enbridge Gas allows simulate the ability of the pipeline system to serve the average daily demand at the critical morning uplift period which peaks around 8 am and other critical time periods as required. Transient modelling typically reduces transmission pipeline facility requirements. A sample hourly demand profile is shown in Schedule 3.

## 4. System Operating Criteria

The transmission systems have a number of operating criteria which ensures the system can operate within its constraints. The primary requirements are that the system:

- Cannot operate above its maximum operating pressure
- Must operate above minimum contractual delivery pressures
- Must operate above minimum suction pressure at the compressor stations
- Must operate within flow and pressure constraints at meter and regulating stations
- The required supply and pressure is available from Dawn and other supply sources

### 4.1. MAXIMUM OPERATING PRESSURE

The Maximum Operating Pressure (MOP) of the Dawn Parkway System is 6160 kPag between Dawn and Parkway. The MOP of the NPS 42 GTA pipeline between Parkway and Albion is 6450 kPag.

### 4.2. MINIMUM SYSTEM PRESSURES

During analysis, it is necessary to ensure that inlet pressures to regulation and meter stations and delivery pressures to in-franchise and ex-franchise customers remain at or above the contractual guaranteed minimum pressure. Pressure must also be maintained above the minimum suction pressures at Enbridge Gas's compressor stations.

- The contractual minimum delivery pressure at Kirkwall is 4,480 kPag
- The contractual minimum delivery pressure at Parkway-Compressed (TC Energy) and Parkway-Compressed (EGT) is 6,450 kPag
- The minimum operating pressure on the Dawn Parkway system is 3450 kPag to EGD Rate Zone at Parkway-Uncompressed (Consumers 1, Consumers 2, and Lisgar stations)
- The minimum suction pressure for Dawn Parkway System compressor units is 3,450 kPag
- The required outlet pressure to Albion is maintained

### 4.3. LOSS OF CRITICAL UNIT (LCU) COVERAGE

Loss of critical unit coverage is included in the Design Day analysis to ensure all firm Design Day demands are served in the event of an unplanned compressor outage of the critical compressor unit at either the Lobo or Bright compressor stations. There is full LCU coverage for the Parkway and Dawn compressor stations.

The critical compressor unit is defined as the compressor unit that creates the greatest loss of system capability if it fails.

Long term compressor unit outages are evaluated to establish the critical unit outage. A Long Term Outage (LTO) analysis considers the largest compressor unit at either Lobo or Bright is not available for the entire



day. This type of outage would occur if the unit had failed and was the unable to be repaired prior to the Design Day occurrence. Additional information regarding LCU is provided in Schedule 4.

Compressor stations without LCU coverage cannot be used to provide firm level of service to in-franchise customers.

## 5. System Capacity

With the demands, supplies and operating criteria set, system modeling takes place to determine if the existing facilities have enough capacity to serve the demands on Design Day.

The simulation function is preformed after the forecast Design Day demands and hourly profiles have been developed and are loaded into the model simulation software. Updates to supply, compressor behavior and new facilities are included in the analysis. System flow and pressures are assessed to ensure that all guaranteed minimum delivery pressures to customers can be maintained and all stations are operating within their design parameters. Locations that are approaching minimum system pressures are identified and reinforcement plans are created. Additional information on the simulation software is found in Schedule 5.

On a regular basis the pressure and flow information are compared to actual field data recordings and the model is adjusted to match field conditions. This verified model becomes the piping system of record that is used for all subsequent piping system analysis.

## 6. Selection of Future Facilities

If the existing facilities cannot deliver the forecast demands at the required delivery pressures, Enbridge Gas would consider facility options including pipeline and compressor alternatives, as well as non-facility commercial services such as Winter Peaking services. The available options are reviewed, the best solution is selected and the Schedule of Facilities is created.

The selection of future facilities is completed by reviewing the current and forecasted future state of the system. Options are then considered for facility or non-facility growth which will meet both the short term and long term requirements of the system at the lowest cost. Consideration of new facilities will include system reliability and security of supply concerns. If the system review is being performed for expansion purposes, the options are considered based on lowest "cost per throughput".

For the first year in the Schedule of Facilities, only facility alternatives that can be constructed to meet the required in service date are examined. The capacity provided by each alternative along with the capital costs are used to complete an initial ranking based on 'cost per unit of throughput'. Next, an economic evaluation is prepared for the viable facility alternatives. This economic evaluation is extended to include the available non-facility alternatives, such as Winter Peaking Service. The alternative having the highest economic benefit is selected.

Facilities needs for subsequent years are determined in a chronological sequence. For each year the facility alternatives remaining are reviewed and ranked based on 'cost per unit throughput'. The highest ranking alternative will be the proposed facility addition for that year.

In a situation where more than one viable alternative ties for the highest rank, multiple facilities schedules will be developed, using each of the alternatives as a base. In this case, the multi-year schedule of facilities will be ranked, with the multi-year alternative with the lowest overall cost per unit throughput chosen as the proposed facility schedule.

---



The asset management plan provides a magnitude level estimate of future pipeline or compression facilities and does not include any non-facility alternatives or detailed economics for alternative comparisons. In the event that the projects identified in the asset plan proceed, Enbridge Gas will complete a Leave to Construct application where a detailed and rigorous examination of both the facility and non-facility alternatives, including detailed costs and economics, can be completed.

## 6.1. SCHEDULE/FACILITY CHANGES

The schedule of facilities may change over time due to the uncertainty in the timing, volume and delivery location of the forecasted demands and supplies. As these parameters change over time, they may change the schedule of facilities.

Specific examples of factors that may change the schedule of facilities are:

- Changes in Design Day demand
  - Decreased demand - a customer may choose not to renew their contracted demand. This could also occur during Reverse Open Seasons.
  - Increased demand – an unexpected increase in customer demand may occur.
  - Location of demand - a customer may decide to change the location of their demand. For example, an ex-franchise customer may want their demand delivered to Parkway instead of Kirkwall.
  - Introduction of new services – The creation of services that allow for multiple receipt and delivery points (i.e. M12X) or different paths (Kirkwall to Parkway) may affect the capacity of the system.
  - Timing of demand - a customer may decide to delay or accelerate the addition of demand. For instance, the conversion of power generation facilities to natural gas is dependent on government approvals.
- Changes in Supply
  - Obligated Delivery at Parkway may decrease if direct purchase customers change their firm supply level to reflect their current plant operations.
  - The Gas Supply Plan may change volume and delivery location depending on gas price, transportation costs and new sources of supply.

The changes above cause shifts in the total system capacity with various facility alternatives. These shifts can change the relative cost effectiveness of an individual facility alternative and may change the ranking of that alternative. This could result in a change in the Schedule of Facilities.

---



## 7. Glossary

### **Compressor Station**

A facility which adds energy into the natural gas stream to increase the system capacity by increasing the system pressure.

### **Contract Demand**

A level of demand Union agrees to supply to a customer based on the customer's requirement.

### **Contract Rate**

The high volume in-franchise commercial and industrial customers served under Union's contract rate schedules.

### **Cost per Unit Throughput**

An analysis to determining the relative value of a facility addition. It is calculated by dividing the capital cost of the facility by the amount of capacity it provides.

### **Daily Demand Profile**

The pattern of customer gas usage during a day.

### **Design Day**

The degree day and demand conditions under which the capacity of the system is determined.

### **Design Day Demand**

The volume of natural gas the customers (in-franchise and M12) are forecast to use on the Design Day.

### **Design Day Operating Criteria**

The set of boundary conditions which must operate within to provide required volume at contractual pressure to customers.

### **Degree Day**

The temperature defined as the design weather condition.

### **Facility**

A physical piece of equipment which increases the capacity of the system. This can include pipelines, compressor stations or metering / regulating stations.

### **General Service**

The residential, small commercial and small industrial customer served under Union's general service schedules.

### **Growth Factors**

The ratio of the forecast winter season divided by the base year winter season volume. Multiplying the base year general service Design Day demand by this ratio gives the future year Design Day demand.

### **M12 Rate**

A rate class used to serve ex-franchise customers wanting firm service on the Dawn Parkway system.

### **Metering and Regulating Facilities**

The facilities used to control pressures on a system and measure the amount of natural gas moving from one system to another.

### **Non-Facility**

A commercial service contracted as a means of providing capacity alternatives without the addition of facilities.

### **Parkway Obligated Deliveries**

The volume of natural gas which is to be supplied to Union at Parkway on behalf of direct purchase and system supply customers.

### **Pipeline**

A number of pipe sections joined together for the purpose of carrying natural gas from one location to another.

### **Schedule of Facilities**

A schedule of additional pipelines or compressor stations required to serve forecast demand.

### **System**

The transmission system including the pipelines, compressor stations and the metering and regulating facilities

### **Winter Peaking Service**

A non-facility alternative service which delivers a specified amount of gas to Parkway for a specified number of days.



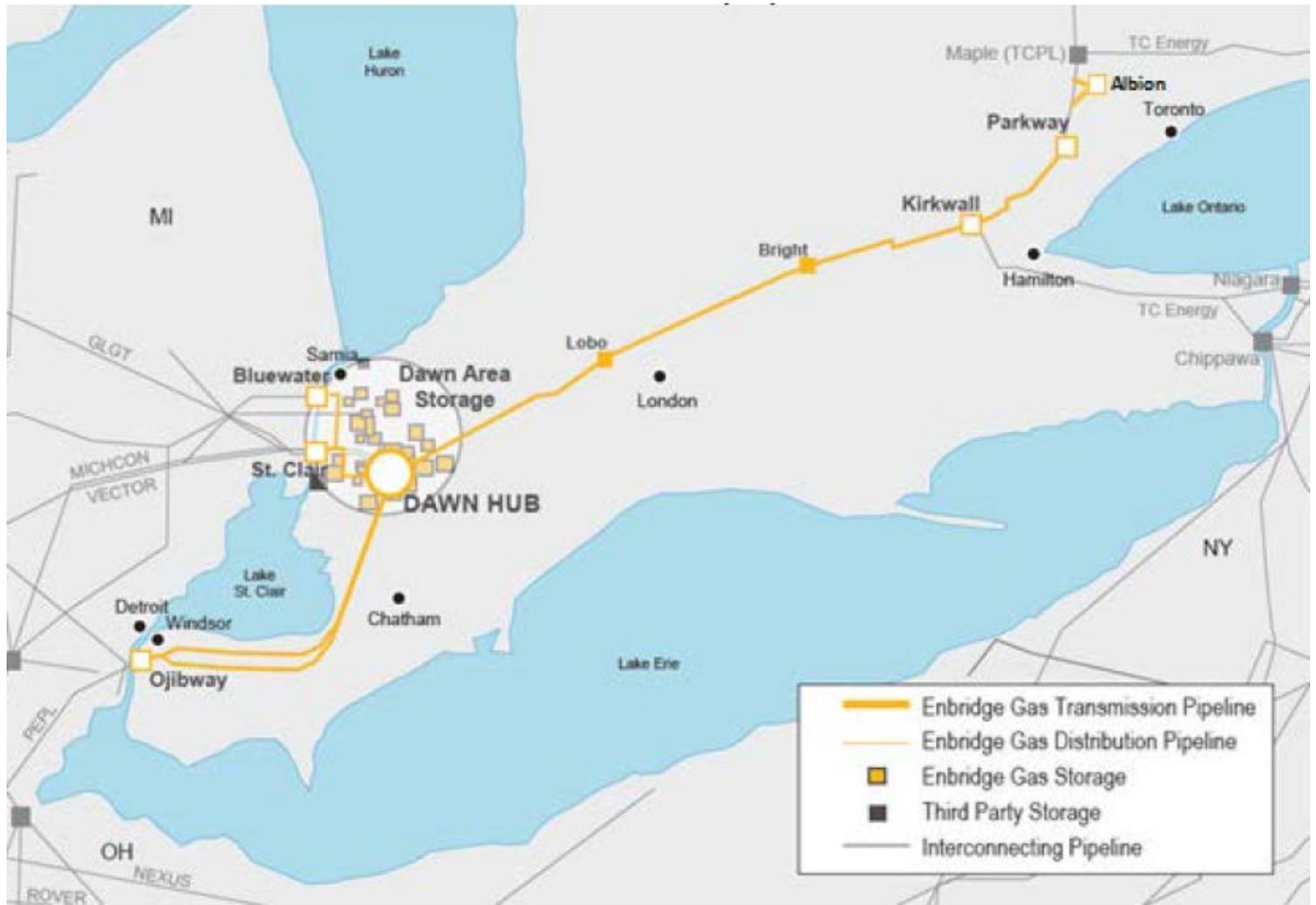
## 8. Appendix

Schedule 1	Map of Dawn-Parkway System
Schedule 2	Union South Rate Zone In-franchise Design Day Demand Development
Schedule 3	Sample Design Day Demand Profile
Schedule 4	Loss of Critical Unit Coverage
Schedule 5	Simulation Information

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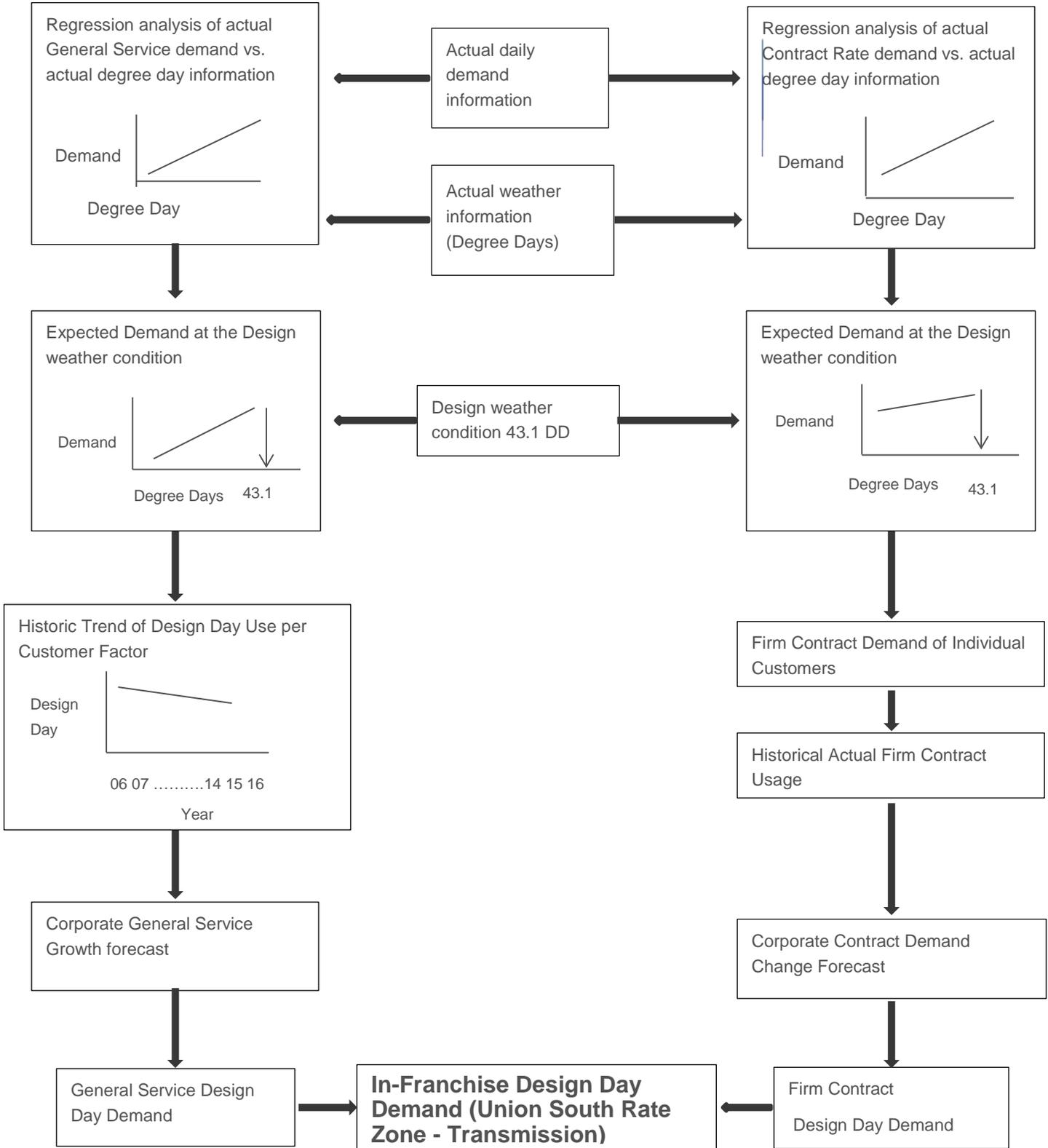


SCHEDULE 1 – MAP OF DAWN PARKWAY SYSTEM





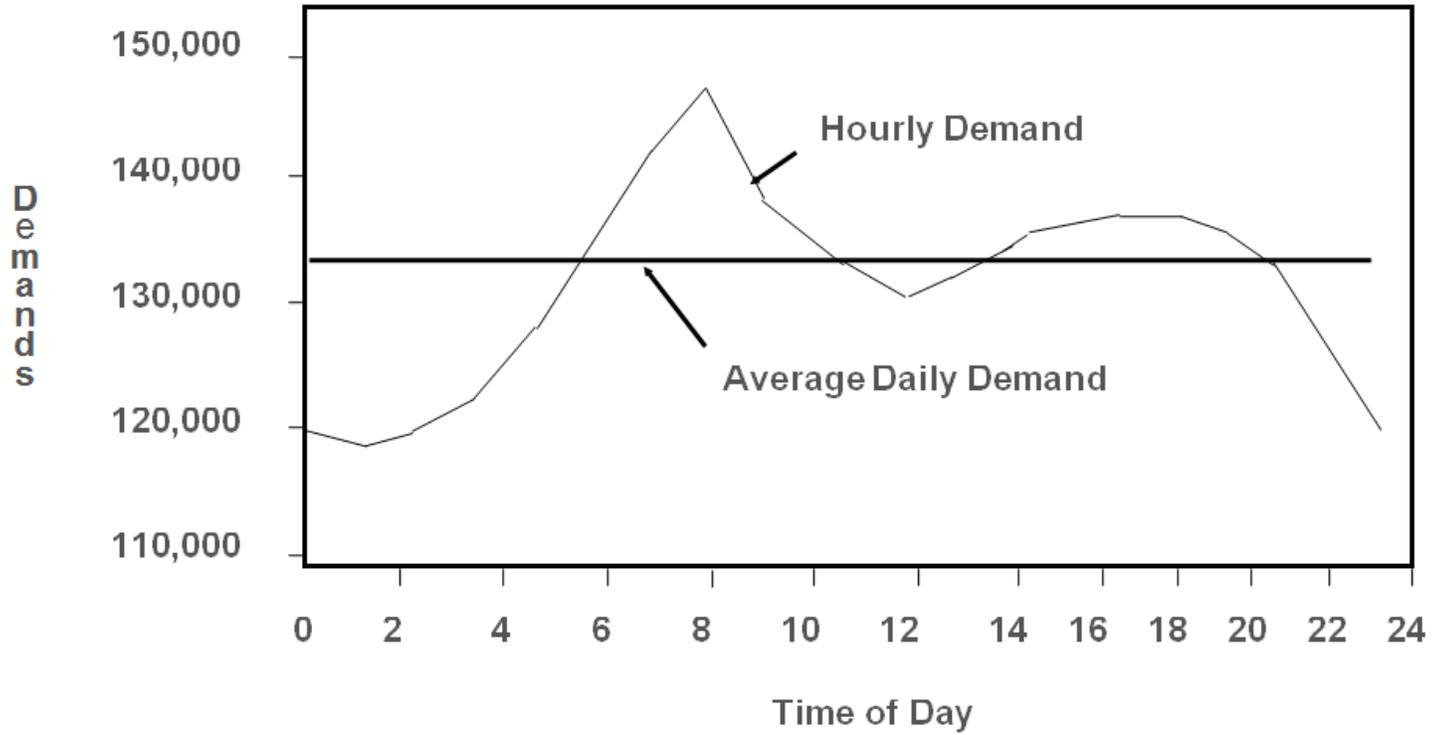
**SCHEDULE 2 – UNION SOUTH RATE ZONE IN-FRANCHISE DESIGN DAY DEMAND DEVELOPMENT**



Note: Forecasts provided by Demand Forecasting Department



SCHEDULE 3 – SAMPLE DESIGN DAY DEMAND PROFILE (HOURLY PROFILE)

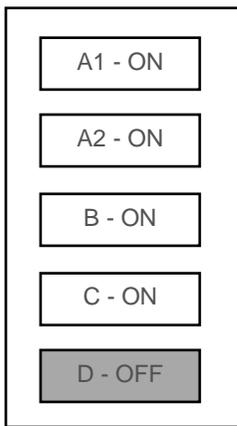




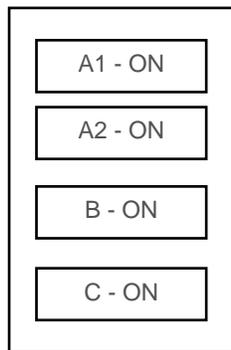
#### SCHEDULE 4 LOSS OF CRITICAL UNIT COVERAGE

**Long Term Outage** – The Critical compressor unit unavailable for entire day.

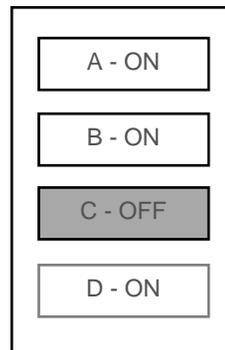
Lobo Compressor



Bright Compressor



Parkway Compressor





**SCHEDULE 5 –SIMULATION INFORMATION**

Union uses a proprietary software package (Synergi) by DNV-GL to complete hydraulic simulation of the transmission systems for Design Day conditions. This model incorporates all of the physical components of the system, Design Day demands and hourly demand profiles.

The Synergi software uses the following engineering fluid flow equations to model the system:

**Pipeline Flow Equation:**

Flow calculations are based on the fundamental flow equation described below:

$$Q = 77.54 \frac{T_b}{P_b} \cdot D^{2.5} E \cdot \left[ \frac{P_1^2 - P_2^2 - \frac{0.0375 G (h_2 - h_1) P_a^2}{Z T_a}}{G \cdot T_a \cdot L \cdot Z \cdot f} \right]^{\frac{1}{2}} \text{ fined.}$$

Where:

- Q = flow rate at standard conditions (standard cubic feet/day)
- T<sub>b</sub> = base temperature at standard gas state (°R)
- P<sub>b</sub> = base pressure of the standard gas state (P<sub>sia</sub>)
- D = internal pipeline diameter (inches)
- E = pipeline efficiency (dimensionless)
- P<sub>1</sub> = upstream pressure (psig)
- P<sub>2</sub> = downstream pressure (psig)
- G = gas specific gravity (dimensionless)
- L = pipe length (miles)
- Z = gas compressibility factor (dimensionless)
- f = pipeline friction factor (dimensionless)
- h<sub>1</sub> = upstream node elevation (feet)
- h<sub>2</sub> = downstream node elevation (feet)
- P<sub>a</sub> = average pipeline pressure (psig)
- T<sub>a</sub> = average gas flowing temperature (°R)



**Compressor Equation:**

$$HP = 3.0303 \frac{QZ_s P_b T_s}{E_c T_b} \frac{k}{k-1} \left[ \left( \frac{P_d}{P_s} \right)^{\frac{k-1}{k}} - 1 \right]$$

**Error! Bookmark not defined.** Where:

- Q = flow rate at standard conditions (standard cubic feet/day)
- HP = horsepower
- T<sub>b</sub> = base temperature at standard gas state (°R)
- P<sub>b</sub> = base pressure of the standard gas state (Psia)
- T<sub>s</sub> = gas suction temperature (°R)
- P<sub>s</sub> = suction pressure (Psia)
- P<sub>d</sub> = discharge pressure (Psia)
- Z<sub>s</sub> = gas compressibility factor at suction conditions (dimensionless)
- k = gas coefficient (dimensionless)
- E<sub>c</sub> = compression efficiency (dimensionless)



1 Board.<sup>1</sup> Enbridge Gas takes the position that the Project is in the public interest and  
2 that the tests set out in E.B.O. 134 are appropriate for the purposes of evaluating the  
3 Project.

4  
5 To provide the Board with supporting information, a Discounted Cash Flow (“DCF”)  
6 analysis, consistent with E.B.O. 134, has been completed.

7  
8 Stage 1 consists of a DCF analysis specific to Enbridge Gas. All incremental cash  
9 inflows and outflows resulting from the Project are identified. The net present value  
10 (“NPV”) of the cash inflows is divided by the NPV of the cash outflows to arrive at a  
11 profitability index (“PI”). If the NPV of the cash inflows is equal to or greater than the  
12 NPV of the cash outflows, PI is equal to or greater than 1.0 and the Project is  
13 considered economic based on current approved rates. If the Project NPV is less than  
14 \$0 or the PI is less than 1.0, a Stage 2 benefit/cost analysis may be undertaken in order  
15 to quantify benefits and costs accruing to Enbridge Gas customers as a result of the  
16 Project.

17  
18 Stage 2 consists of discounting the quantified benefits to customers resulting from the  
19 Project at a social discount rate and the results are added to the Project NPV from  
20 Stage 1 to calculate the direct net benefit of the Project to Enbridge Gas customers.<sup>2</sup>

---

<sup>1</sup> E.B.O. 134, Report of the Board, June 1, 1987, pp. 45-48; EB-2012-0092, Filing Guidelines on the Economic Tests for Transmission Pipeline Applications, February 21, 2013.

<sup>2</sup> Project NPV = NPV of cash inflows – NPV of cash outflows

1 The Project is considered to be in the public interest if the net benefit is greater than \$0.  
2 Stage 3 analysis considers other quantifiable benefits and costs related to the  
3 construction of the Project, not included in the Stage 2 analysis, and other non-  
4 quantifiable public interest considerations.

5

## 6 **2. Stage 1 – Project Specific Discounted Cash Flow Analysis**

7 The Stage 1 DCF analysis for the Project can be found at Exhibit A, Tab 8, Schedule 4.  
8 This schedule indicates that the Project has a NPV of negative \$120.3 million and a PI  
9 of 0.35.

10

11 A summary of the key input parameters, values and assumptions used in the Stage 1  
12 DCF analysis can be found at Exhibit A, Tab 8, Schedule 2.

13

14 Incremental cash inflows are estimated based on the 2019 approved M12 Dawn-  
15 Parkway demand rate. The rate is adjusted using the appropriate Dawn-Parkway  
16 distance allocation. The revenue calculation for the transmission margin can be found  
17 at Exhibit A, Tab 8, Schedule 3.

18

19 Incremental cash outflows, in accordance with E.B.O. 134, include all estimated  
20 incremental Project costs. The total estimated incremental cost of the Project can be  
21 found at Exhibit A, Tab 8, Schedule 1.

22

1 **3. Stage 2 – Benefit/Cost Analysis**

2 A Stage 2 analysis may be undertaken when the Stage 1 NPV is less than zero. The  
3 Stage 2 analysis considers the estimated energy cost savings that accrue directly to  
4 Enbridge Gas in-franchise customers as a result of using natural gas instead of another  
5 fuel to meet their energy requirements. The difference in fuel cost is derived as:

6 *[Weighted Average Alternative Fuel Cost - Cost of Natural Gas] × Energy Use*  
7

8 The Stage 2 NPV of energy cost savings are estimated to be in the range of  
9 approximately \$3.4 billion over a period of 20 years to \$5.1 billion over 40 years.

10 A range is provided as the outcome can vary depending upon the assumptions for  
11 alternative fuel mix, energy use, fuel prices, and term. The results and assumptions  
12 associated with this analysis can be found at Exhibit A, Tab 8, Schedule 5.  
13

14 **4. Stage 3 – Other Public Interest Considerations**

15 There are a number of other public interest factors for consideration as a result of the  
16 Project. Some are quantifiable and others are not readily quantifiable. Quantifiable  
17 factors include GDP, taxes and employment impacts. Other less quantifiable impacts  
18 include, but are not limited to, energy choice options and environmental benefits.

19 Applicable other public interest factors are discussed below:  
20

1 **Enhanced Security**

2 As Enbridge Gas adds additional facilities on the Dawn Parkway System, security,  
3 reliability and diversity of supply for all customers will be enhanced. The Project  
4 improves diversity of supply for customers in Ontario and Québec by providing them  
5 with further access to the Dawn Hub. The Project provides all of Enbridge Gas  
6 customers with enhanced access to alternative sources of supply in the event of  
7 insufficient capacity or disruptions to other pipeline systems. When approving previous  
8 expansions of the Dawn Parkway System, the Board has consistently recognized these  
9 benefits.

10

11 **Economic Benefits for Ontario**

12 The construction of the Project will provide direct and indirect economic benefits to  
13 Ontario estimated at approximately \$221.0 million, as detailed at Exhibit A, Tab 8,  
14 Schedule 6. This figure is related only to the construction of the Project and does not  
15 include the similar direct and indirect economic benefits to Ontario when natural gas  
16 customers receiving this incremental supply invest and grow their operations.

17

18 **Competitive Market Impacts**

19 Construction of the Project will enhance and improve Ontario's competitive market for  
20 natural gas supply. As take away capacity from Dawn increases, trading activity at the  
21 Dawn Hub increases which results in increased price transparency and liquidity. The  
22 OEB has previously recognized that supply diversity brings cost benefits through

1 enhanced competition. All natural gas customers benefit from increased access to  
2 competitively priced natural gas supply.

3

#### 4 **Enhancement of Supply Choices**

5 As noted at Exhibit A, Tab 5, unconventional sources of natural gas supply have  
6 fundamentally changed natural gas supply options in North America and have helped  
7 reduce the cost of natural gas. The ability to access conventional and unconventional  
8 supply at the Dawn Hub, in close proximity to the Ontario market, can reduce the cost  
9 exposure to transportation demand charges for natural gas buyers when compared to  
10 conventional supplies from traditional supply basins. This cost and risk reduction  
11 benefits all Ontario natural gas consumers either directly or indirectly through the  
12 purchase of goods and services produced with natural gas as an input cost.

13

#### 14 **Employment**

15 The construction of this Project will result in additional direct and indirect employment.  
16 There will be additional employment of persons directly involved in the construction of  
17 the Project. In addition, there will be a trickledown-effect on employment as the Project  
18 is estimated to create approximately 2,759 jobs as referenced at Exhibit A, Tab 8,  
19 Schedule 6.

20

#### 21 **Utility Taxes**

22 A decision to proceed with this Project will result in Enbridge Gas paying taxes directly

1 to various levels of government. These taxes include Ontario income taxes and  
2 municipal taxes paid by Enbridge Gas as a direct result of the Project and are included  
3 as costs in the Stage 1 DCF analysis. These taxes are not true economic costs of the  
4 Project since they represent transfer payments within the economy that are available for  
5 redistribution by federal, provincial and municipal governments. The NPV of Ontario  
6 income taxes and municipal taxes payable by Enbridge Gas related to the Project over  
7 the Project life is approximately \$33.0 million with a further \$15.0 million paid to the  
8 federal government. These figures are further detailed at Exhibit A, Tab 8, Schedule 6.

9

#### 10 **Employer Health Taxes**

11 The additional employment resulting from construction of the Project will generate  
12 additional employer health tax payments to aid in covering the cost of providing health  
13 services in Ontario.

14

#### 15 **Environmental Effects**

16 Natural gas, because of its clean-burning properties, has an increasingly important role  
17 to play in reducing the environmental impacts of energy use. The use of natural gas,  
18 either in conjunction with or in-place of other fossil fuels, in residential, commercial,  
19 industrial and transportation applications reduces environmental impacts in two ways.  
20 Firstly, processing with natural gas is frequently more efficient, reducing total energy  
21 use. Secondly, natural gas pollutant release per unit of energy is less than other fossil  
22 fuels. Natural gas combustion produces virtually no sulphur dioxide – the most

1 significant component of acid rain formation. Combustion of natural gas also emits  
2 significantly lower amounts of reactive hydrocarbons and nitrogen oxides – the key  
3 photochemical agents in the formation of urban smog.

4

#### 5 **5. Summary of Stages 1 to 3 Analyses**

6 The Table 8-1 shows the NPV calculated for the 3-Stage economic analysis completed  
7 for the Project.

8

9

10

**Table 8-1**  
**NPV Calculation**

<b>Stage</b>	<b>NPV (\$millions)</b>
<b>1</b>	(\$120)
<b>2</b>	\$3,437 to \$5,122
<b>3</b>	\$221
<b>Total</b>	<b>\$3,538 to \$5,223</b>

11

12 Enbridge Gas therefore submits that this Project is economically feasible and in the  
13 public interest.

14

15 On February 21, 2013, the Board issued a new requirement to the Filing Guidelines on  
16 the Economic Tests for Transmission Pipeline Applications with respect to E.B.O. 134

17 (EB-2012-0092):<sup>3</sup>

18

---

<sup>3</sup> EB-2012-0092, Filing Guidelines on the Economic Tests for Transmission Pipeline Applications, February 21, 2013, p. 3.

1 Any project brought before the Board for approval should be supported by an  
 2 assessment of the potential impacts of the proposed natural gas pipeline(s) on the  
 3 existing transportation pipeline infrastructure in Ontario, including an assessment of  
 4 the impacts on Ontario consumers in terms of cost, rates, reliability and access to  
 5 supplies.  
 6

7 These impacts have been addressed throughout this Application. Table 8-2 summarizes  
 8 these impacts and provides references to additional detail.

9 **Table 8-2**  
 10 **Project Impact to Customers**

Entity Impacted		Summary of Impact	Reference
Existing Infrastructure	Enbridge Gas	Enbridge Gas is proposing to construct the 10.2 kilometer Kirkwall to Hamilton NPS 48 pipeline.	Exhibit A, Tab 9.
Impacts to Ontario consumers	Costs and Rates	The OEB approved the use of the ICM for Enbridge Gas in the MAADs Decision as a mechanism for the funding of incremental capital during the deferred rebasing period. <sup>4</sup> The Project meets the criteria for rate recovery through the ICM mechanism and Enbridge Gas expects to request approval under Section 36 of the Act related to ICM rate recovery of the Project as part of its 2021 Rates application.	Exhibit A, Tab 3.
	Reliability and Access to Supplies	This Project supports conversion by Enbridge Gas of high-risk and high-cost short-term market based services to reliable firm transportation assets. The Project also supports increased access to the Dawn Hub for ex-franchise shippers, reflecting ongoing changes in North American natural gas markets and providing lower cost, greater reliability and diversity of supply and enhanced liquidity at the Dawn Hub over the long term.	Exhibit A, Tab 5. Exhibit A, Tab 6.

11

<sup>4</sup> EB-2017-0306/0307, Decision and Order, August 30, 2018, pp. 30-34.

**Kirkwall to Hamilton Pipeline**  
**Total Estimated Pipeline and Station Costs**

	Mainline
Materials	\$ 15,726,204
Construction and Labour	\$ 142,474,551
Contingencies	\$ 23,725,640
Interest During Construction	\$ 2,133,877
Indirect Overhead	\$ 19,466,124
Total Estimated Capital Costs - 2019 Construction	<u>\$ 203,526,396</u>
Total Estimated Incremental Capital Costs - 2019 Construction	\$ 184,060,272

**Kirkwall to Hamilton Pipeline**  
**InService Date: Nov-01-2021**  
**(Project Specific DCF Analysis)**

**Stage 1 DCF - Listing of Key Input**  
**Parameters, Values and Assumptions**  
**(\$000'S)**

<p><b>Discounting Assumptions</b></p> <p>Project Time Horizon</p> <p>Discount Rate</p>	<p>40 years commencing at facilities in-service date of Nov 1, 2021</p> <p>Incremental weighted average after tax cost of capital of 4.69%</p>									
<p><b>Key DCF Input Parameters, Values and Assumptions</b></p> <p><b>Net Cash Inflow:</b></p> <p>Incremental Revenue:            Transmission portion of M12 Dawn-Parkway Demand Rate</p> <p>Operating and Maintenance Expense</p> <p>Incremental Tax Expenses:            Municipal Tax            Income Tax Rate</p> <p>CCA Rates:</p> <table border="0"> <tr> <td>CCA Classes:</td> <td>CCA Class</td> <td>CCA Rate</td> </tr> <tr> <td>Land Rights</td> <td>14</td> <td>5%</td> </tr> <tr> <td>Steel Mains</td> <td>49</td> <td>8%</td> </tr> </table>	CCA Classes:	CCA Class	CCA Rate	Land Rights	14	5%	Steel Mains	49	8%	<p>3.097 \$/GJ/month applied to Design Day Demand</p> <p>Estimated incremental costs</p> <p>Estimated incremental cost 26.50%</p> <p>Declining balance rates by CCA class          Accelerated CCA (Bill C-97) included.</p>
CCA Classes:	CCA Class	CCA Rate								
Land Rights	14	5%								
Steel Mains	49	8%								
<p><b>Cash Outflow:</b></p> <p>Incremental Capital Costs Attributed</p> <p>Change in Working Capital</p>	<p>Indirect overhead costs not included.          Refer to DCF Schedule 4</p> <p>5.051% applied to O&amp;M</p>									

2021 Dawn-Parkway Expansion Project  
 Hamilton-Kirkwall  
Calculation of Annual Revenues Associated with Incremental Project Capacity

Line No.	Particulars	Nov-21	
<b>Incremental Design Day Demands Served by Project Capacity (GJ/d)</b>			
1	Union South (1)	41,739	
2	Union North	12,747	
3	Incremental Rate M12 Dawn-Parkway (2)	53,960	
<b>Rate M12 Dawn-Parkway Demand Charge (\$/GJ/mo)</b>			
4	Dawn-Parkway Transmission Easterly Charge	3.210	
5	Dawn-Parkway Transmission Rate M12 Westerly Adjustment (3)	(0.113)	
6	Dawn Compression	0.506	
7	Total Rate M12 Dawn-Parkway Demand Charge (4)	3.602	
<b>Dawn-Parkway Distance (km)</b>			
8	Total Dawn to Parkway Distance	228.94	
9	Union South (5)	82.15	
10	Union North	228.94	
11	Rate M12 Dawn-Parkway	228.94	
<b>Incremental Annual Revenues (\$000's)</b>			
<u>Dawn-Parkway Transmission</u>			
12	Union South	line 1 * line 9/line 8 * line 4 * 12/1000	577
13	Union North	line 2 * line 10/line 8 * line 4 * 12/1000	491
14	Incremental Rate M12 Dawn-Parkway	line 3 * line 11/line 8 * (line 4+line 5) * 12/1000	2,005
15	Total Dawn-Parkway Transmission Incremental Revenue		3,073

Notes:

- (1) Union South demands of 41,739 GJ/d equivalent to 25,467 GJ/d of Dawn-Parkway capacity.
- (2) Incremental Rate M12 Dawn-Parkway demands calculated as 92,174 GJ/d project capacity less 25,467 GJ/d reserved for Union South and 12,747 GJ/d reserved for Union North. The EGD rate zone demands of 125,000 GJ/d will be served in part by the incremental Rate M12 Dawn-Parkway project capacity.
- (3) Rate M12 Dawn-Parkway adjustment associated with westerly demand charges, which reduces the Rate M12 Dawn-Parkway easterly demand charge, as per the Board-approved Rate M12 rate design.
- (4) EB-2018-0305 (2019 Rates), Rate Order, Appendix A, page 14, line 2.
- (5) 2013 Board-approved Union South in-franchise weighted average Dawn-Parkway distance included in base Union South in-franchise delivery rates.









**Kirkwall to Hamilton Pipeline  
 Stage 2 Benefit/Cost Analysis - Customer Fuel Savings**

Stage 2 (Customer Fuel Savings) Data for Kirkwall to Hamilton Pipeline Assumptions

Fuel Mix in the Event Gas is Not Available

Line	(a)	(b)	(c)	(d)=(b)-(c)	(e)		(f)=(d)*(e)		(g)		(h)=(d)*(g)	
					Contract		General Service					
	Fuel Prices	\$/m <sup>3</sup>	Gas \$/m <sup>3</sup>	Diff \$/m <sup>3</sup>	Fuel Mix	Wt Ave Diff \$/ m <sup>3</sup>	Fuel Mix	Wt Ave Diff \$/ m <sup>3</sup>	Fuel Mix	Wt Ave Diff \$/ m <sup>3</sup>	Fuel Mix	Wt Ave Diff \$/ m <sup>3</sup>
1	Heating Oil	1.19	0.13	1.06	24%	0.252	24%	0.252	24%	0.252	24%	0.252
2	Propane	1.00	0.13	0.87	10%	0.083	10%	0.083	10%	0.083	10%	0.083
3	Electricity	0.89	0.13	0.76	67%	0.506	67%	0.506	67%	0.506	67%	0.506
4					Total %	100%			100%			
5					Weighted Savings \$/m <sup>3</sup>	0.842						0.842

Gas and alternative fuel prices are the average posted prices for the 12 month period ending December 2018  
 Prices in the table are before the added cost of Carbon.

**Carbon Prices** The cost of carbon is added to the price of each fuel in above table

	2019	2020	2021	2022	2023	2024	2025	
Cost per tonne	\$20	\$30	\$40	\$50	\$50	\$50	\$50	
	2026	2027	2028	2029	2030	2031	2032	
Cost per tonne	\$50	\$50	\$50	\$50	\$50	\$50	\$50	Future Yrs at cost \$50

**Calculation for Stage 2 Incremental Energy Demand**

Estimated Energy Demand with Pipeline Built  
 Equals Potential annual energy demand (for Stage 2 calculations)  
 Times Weighted Average Savings per m<sup>3</sup>  
 Equals Annual Fuel Savings: Natural Gas Vs Alt Fuels

**Discount Rate for Net Present Values** 4.0%

**Length of Term for Fuel Savings**

Stage 2 estimated based on 20 years and 40 years

**Present Value of Customer Fuel Savings**

For conservatism, the NPV is assessed over 20 years with sensitivity at 40 years

Figures in \$ Millions	20 Years	40 Years
General Service Fuel Savings	3,437	5,122

NPV Fuel Savings Range from \$3,437 million over 20 years to \$5,122 million over 40 years

Kirkwall to Hamilton Pipeline  
 Economic Benefits from Infrastructure Spending  
 Figures in \$ Millions

Line No	Description	Capex Spend Out of Country (a)	Capex Spend within Ontario (b)	Capex Spend within Canada Excluding Ontario (c)	Capex Total (d)= sum (a-c)	
1	Proposed Facilities	\$ 16	\$ 165	\$ 3	\$ 184.1	
2						
3	% of Total Spend	9%	90%	1%	100%	Line 1 /Total Line 1 Col (d)
4						
5	GDP					
6	GDP Factor		1.14			
7	GDP Impact \$ Millions		\$ 188			Line 1 * Line 6
8						
9	Employment (Jobs)					
10	Jobs Factor		16.7			
11	Jobs Created		2,759			Line 1 * Line 10
12						
13	Taxes Paid by Enbridge Gas					
14	Property Tax		\$ 14			Source: NPV DCF
15	Provincial Income Tax		\$ 19			Source: NPV DCF
16	Total Provincial Taxes		\$ 33			
17	Federal Income Tax		\$ 15			Source: NPV DCF
18	Total Taxes Paid		<u>\$ 48</u>			
19						
20	Total Value to Ontario					
21	GDP Impact \$ Millions		\$ 188			Line 7
22	Total Provincial Taxes		\$ 33			Line 16
23	NPV Total Value to Ontario		<u>\$ 221</u>			



1 thereby minimizing the impact of construction on agricultural lands and other features,  
2 such as watercourses. The planned Project in-service date is fall 2021.

3

### 4 **3. Design and Pipeline Specifications**

5 All design, installation and testing of the proposed pipeline will be in accordance with  
6 the requirements of Ontario Regulation 210/01 Oil and Gas Pipeline Systems under the  
7 Technical Standards and Safety Act 2000. This regulation governs the installation of  
8 pipelines in the Province of Ontario.

9

10 The design meets or exceeds the requirements of CSA Z662 Standard for Oil and Gas  
11 Pipeline Systems (latest edition) in accordance with the Code Adoption document under  
12 the Ontario Regulations.

13

14 The Project is within Class 1, 2 and 3 locations. Considering future potential  
15 development along the route, the Project is designed to meet Class 2 and 3 location  
16 requirements.

17

18 The NPS 48 pipeline will have an outside diameter of 1219 millimeters, a minimum wall  
19 thickness of 11.7 millimeters, Category II notch toughness at design temperature of  
20 M5C and minimum specified yield strength of 483 MPa. Maximum Operating Pressure  
21 ("MOP") of the pipeline will be 6170 kPa. The pipe will be manufactured to CSA Z245.1

1 Steel Line pipe Standard for Pipeline Systems and Materials (latest edition). Figure 9-1  
 2 below illustrates minimum design and pipe parameters.

3 **Figure 9-1**  
 4 **Minimum Pipeline Design Specifications**

<b>NPS 48 (1219 mm)</b>	<b>Class 2 General or Road Location</b>	<b>Class 3 General or Road Location</b>
<b>Location Factor</b>	0.9 or 0.625	0.7 or 0.625
<b>Design Factor</b>	0.8	0.8
<b>Maximum Operating Pressure (MOP)</b>	6170 kPa	6170 kPa
<b>Mainline Test Medium</b>	Water	Water
<b>Mainline Minimum Test Pressure</b>	MOP x 1.25 (7713 kPa)	MOP x 1.4 (8638 kPa)
<b>Grade (minimum)</b>	483 MPa	483 MPa
<b>Wall Thickness (minimum)</b>	11.7 mm	15.6 mm
<b>%SMYS</b>	66.5%	49.9%
<b>Category</b>	II	II

5  
 6 The minimum depth of cover specified is 1.0 metre from top of pipe in general locations  
 7 and 1.2 metres under roads. Additional depth of cover will be provided to accommodate  
 8 planned or existing underground facilities, or in specific areas in compliance with  
 9 applicable regulated standards. In agricultural areas, the minimum depth of cover will  
 10 be 1.2 metres, except where bedrock is encountered at a depth less than 1.2 metres, in  
 11 which case the pipe will be installed with the same cover as the bedrock, but not less  
 12 than 1.0 metre below grade.

13  
 14 Modifications to existing valve sites will include the installation of receiver provisions  
 15 and a mainline valve at the Kirkwall Valve Site and a tie-in to an existing mainline valve  
 16 at the Hamilton Valve Site.

1 **4. Pipeline Construction**

2 Exhibit A, Tab 9, Attachment 1, describes the General Techniques and Methods of  
3 Construction that Enbridge Gas will employ for the construction of the Project. It details  
4 such activities as surveying, clearing, grading, stringing of pipe, trenching, welding,  
5 backfill, tile repair and clean-up. Bedrock will be encountered on this Project. Any  
6 bedrock that is found will be removed by hoe-ram or blasting.

7

8 The proposed pipeline will be pressure tested hydrostatically with water once it is  
9 installed. Testing will adhere to the requirements of CSA Z662 Oil and Gas Pipeline  
10 Systems Section 8 (current edition) at a minimum. Sources for hydrostatic test water  
11 have not yet been determined. Any water taken from the environment for hydrostatic  
12 testing will be reviewed as part of the Permit to Take Water issued by the Ministry of  
13 Environment Conservation and Parks and will comply with all conditions of the permit.

14

15 After the test water is removed, the line will be dried. A caliper tool will be run to check  
16 for dents or ovality. Cathodic protection will be applied to the completed pipeline.

17

18 Pipe will need to be ordered in 2020 to meet the in-service date of fall 2021. Enbridge  
19 Gas anticipates no issues obtaining material for the pipeline component of the Project  
20 within the proposed timelines. Enbridge Gas also anticipates no issues in obtaining a  
21 contractor to complete construction.

22

1 Enbridge Gas will construct the proposed pipeline in compliance with engineering  
2 design, its current construction procedures and specifications, environmental mitigation  
3 identified in the ER, permit conditions and commitments to regulators and landowners.  
4 Enbridge Gas continuously updates and refines its construction procedures and  
5 specifications and complies with environmental mitigation recommended to minimize  
6 potential impacts to the environment and land. An Enbridge Gas Landowner Relations  
7 Agent (“LRA”) will contact each landowner along the route prior to construction to obtain  
8 site specific requirements such as livestock fencing and access points. This information  
9 is included in the construction contract so that the pipeline contractor is contractually  
10 obligated to fulfill all commitments made to the landowner.

11  
12 As part of the construction plan, each landowner with agricultural land impacted by the  
13 Project will be consulted to understand the impact to field tiling. This could result in the  
14 need to install tiling prior to construction (pre-construction tiling) to ensure field drainage  
15 systems and farm operations are not disrupted during construction. Enbridge Gas  
16 retains a qualified drainage consultant to determine if a property that contains a field  
17 drainage system could benefit from pre-construction tiling. The Enbridge Gas drainage  
18 consultant will be contacting landowners to discuss their tile needs. Landowner  
19 approval is required for tiling work conducted outside of the easement. The drainage  
20 consultant will prepare a tiling plan and provide a copy of the plan to both Enbridge Gas  
21 and the landowner.

22

1 All necessary permits, approvals and authorizations will be obtained by Enbridge Gas at  
2 the earliest appropriate opportunity. Enbridge Gas expects to receive all required  
3 approvals prior to commencing construction of the Project. Enbridge Gas will assign  
4 inspection staff to ensure that contractual obligations between Enbridge Gas and the  
5 pipeline contractor, provincial ministries, municipal government and landowners are  
6 complied with.



## General Techniques and Methods of Construction

The pipeline construction process includes various activities as described below:

1. **Site Preparation and Clearing:** The first activity is typically survey and staking, which delineate the boundaries of the right of way (RoW) and temporary work areas. Next, the RoW and temporary work areas are cleared of brush and trees (typically during winter, under frozen ground conditions). In the spring the fences that break up the linear RoW are braced and cut to permit an uninterrupted work area. Safety fence is installed at the edge of the construction RoW where public safety considerations are required, and aspects of the traffic management plan are implemented (i.e. signs, vehicle access). Silt fence is installed at required locations. Pre-tiling work is completed to accommodate agricultural drainage.
2. **Grading and Stripping:** The RoW is graded to allow for access by construction equipment. At this stage, the topsoil (on agricultural lands) or the duff layer (on natural lands) is stripped by bulldozers and graders then segregated so it will not be mixed with the subsoil later removed from the trench. Existing landscaping is also removed, and dewatering undertaken, where necessary.
3. **Stringing:** Stringing is the process where pipe sections are delivered to the full length of the RoW, placed on wooded skids and generally parallel to where the trench will be excavated.
4. **Pipe Fabrication:** The pipe is bent as required and the welding crew welds the pipe into continuous lengths. The pipe welds are non-destructively tested (e.g. x-ray) and coated.
5. **Trenching and Lowering:** After the pipe is fabricated, a trenching machine or hydraulic hoe can begin excavating a new trench. In areas of shallow bedrock, hoe-ramming and/or blasting may be required. In agricultural areas, tiles that are cut during the trench excavation are flagged and repaired as quickly as practical. In some areas the pipeline cannot be installed by trenching due to obstacles such as roads or watercourses. In these locations the pipeline is installed using a trenchless approach through a variety of different means. Laneways and driveways are left over the trench as long as feasible where requested by the landowner.
6. **Backfilling:** During backfilling the originally excavated subsoil is placed over the pipe in the trench. In stony areas, the pipe may be sand-padded to protect the coating. In shallow water table areas, the pipeline may be weighted to provide negative buoyancy. In agricultural areas, after the trench is backfilled, tiling is repaired that was disturbed or broken by construction. Landowners with tile drainage are given the opportunity to inspect tile repairs. Typically, a tile consultant is retained to oversee tile repairs and the design of a header tile system if required.
7. **Hydrostatic Testing:** The pipeline is pressure tested by filling the pipe with water and holding it at a high pressure for a set period of time. Water is typically drawn by permit from nearby water sources such as watercourses or lakes, if available. Municipal water may also be used for hydrostatic testing. Upon completion of the hydrostatic testing, the pipeline is drained and dried then put into service with natural gas.
8. **Clean-Up and Restoration:** Clean-up is the restoration of the RoW and other work areas. On agricultural land, this may require decompaction of the subsoil and stone picking to maintain productivity. In natural areas, clean-up restores the environment including re-seeding of the RoW, returning the topography after grading, restoring ditch banks and watercourse crossings. Any erosion and sediment controls installed during construction are also removed. Clean-up will also restore landscaping, laneways and driveways.

1 **ENVIRONMENTAL MATTERS**

2 The purpose of this section of evidence is to provide an overview of the Dawn-Parkway  
3 System Expansion: Kirkwall-Hamilton Pipeline Section: Environmental Report (“ER”)  
4 completed for the Project and to provide specific details on certain aspects of the ER.

5  
6 This Tab of evidence is organized as follows:

- 7 1. ER Background
- 8 2. Species at Risk
- 9 3. Archaeology
- 10 4. Wetlands
- 11 5. Watercourses
- 12 6. Tree Removal
- 13 7. Social-Economic Features

14  
15 **1. ER Background**

16 An ER for the Project was completed in 2019 by Stantec Consulting Limited (“Stantec”).  
17 The ER prepared for the Project is not included in the electronic filing. Rather, two hard  
18 copies and USB drives will be sent by courier to the OEB and an electronic version of  
19 the ER is available on the Enbridge Gas website.<sup>1</sup> Enbridge Gas has included a cover  
20 sheet for the ER within its Application at Exhibit A, Tab 10, Attachment 1.

21  

---

<sup>1</sup> <https://www.uniongas.com/projects/kirkwall-hamilton>

1 The ER was forwarded to the Ontario Pipeline Coordination Committee (“OPCC”) on  
2 June 21, 2019 for review. Copies of the ER were also sent to all affected municipalities,  
3 conservation authorities, Mississauga of the Credit, Six Nations and the  
4 Haudenosaunee Development Institute.

5  
6 A summary of the comments from agencies and interested parties together with the  
7 Enbridge Gas responses can be found at Exhibit A, Tab 10, Attachment 2.

8  
9 To inform and solicit input from landowners, tenants and the general public with respect  
10 to the Project, public information sessions were held as follows:

- 11 • February 27, 2019 – in Carlisle, Ontario; and
- 12 • May 9, 2019 – in Valens, Ontario.

13 The purpose of the information sessions was to provide the general public an  
14 opportunity to: (i) view specifics of the Project; and (ii) ask questions and comment on  
15 the Project, the preferred route and the overall planning process. Notification of the  
16 information sessions was completed through newspapers and letters.

17  
18 The ER identifies an environmentally preferred route for the proposed pipeline. The ER  
19 also identifies various mitigation measures to minimize the impacts to the environment  
20 resulting from the construction of the Project. Enbridge Gas believes that by following  
21 its standard construction practices and adhering to the recommendations and mitigation  
22 identified in the ER that the construction and operation of the Project will have negligible

1 impacts on the environment. The cumulative effects assessment completed as part of  
2 the ER indicates that no significant cumulative effects are anticipated from the  
3 development of the Project. Enbridge Gas will comply with all mitigation measures  
4 recommended in the ER.

5  
6 Some of the more pertinent aspects of the ER are explained in further detail below.

7

## 8 **2. Species at Risk:**

9 A number of species at risk potentially inhabit lands in the vicinity of the Project.  
10 Enbridge Gas has and will continue to assess the pipeline route for species at risk and  
11 will work closely with the Ministry of Environment, Conservation and Parks (“MECP”)  
12 and the Department of Fisheries and Oceans Canada (“DFO”) to develop appropriate  
13 mitigation measures to protect species at risk and obtain all required permits and  
14 approvals.

15

## 16 **3. Archaeology:**

17 An archaeological assessment will be completed by a licensed archaeological firm  
18 along the pipeline route, as recommended in the ER. Enbridge Gas proposes to  
19 complete the majority of the archaeological assessment during the 2019/2020 field  
20 seasons.

21

1 **4. Wetlands**

2 The Project route crosses wetlands. The ER provides a number of measures designed  
3 to reduce the impact of constructing the proposed pipeline through wetlands. The ability  
4 to overlap the construction work area with existing pipeline easements through wetland  
5 areas will reduce the impacts to wetlands. Enbridge Gas will continue to assess the  
6 Project for potential environmentally sensitive areas, including wetlands, and will  
7 develop mitigation measures in consultation with the Ministry of Natural Resources, the  
8 Grand River Conservation Authority (“GRCA”), the Hamilton Conservation Authority  
9 (“HCA”) and Conservation Halton (“CH”) as appropriate.

10

11 **5. Watercourses**

12 As noted in the ER, the Project crosses four watercourses. These crossings will be  
13 completed using ‘Dam and Pump’ dry crossing methods. All permits required to  
14 complete the crossings will be obtained from the DFO, MECP, GRCA, HCA and CH  
15 prior to construction.

16

17 **6. Tree Removal**

18 For trees removed within the proposed easement and temporary working space,  
19 Enbridge Gas has a tree replacement program that consists of replanting at least twice  
20 the woodlot area cleared for construction. Coniferous and deciduous seedlings native  
21 to Ontario are planted within the region of the Project and maintained up to a period of  
22 five years or until the trees reach a free-to-grow status defined by a height of one metre

1 and are free of adjacent brush competition. Replanting must be done in accordance with  
2 Enbridge Gas policies regarding tree planting so that the easement is left open for  
3 access to the pipeline and aerial patrol. Landowners are given first right of refusal for  
4 tree planting.

5

## 6 **7. Social-Economic Features**

7 The Project bisects two residential communities, three businesses, and one provincial  
8 highway. Enbridge Gas has developed and will continue to develop appropriate  
9 mitigation measures to reduce potential negative impacts to these social-economic  
10 features.

**Dawn-Parkway System Expansion:  
Kirkwall to Hamilton Pipeline Section:  
Environmental Report**

Kirkwall-Hamilton Pipeline Project  
Correspondence Tracking  
Government and Agencies

Comment Number	Stakeholder Group	Stakeholder Representative Name	Method of Communication	Date of Communication	Summary of Comment	Date of Response	Summary of Response
1	Ministry of Environment, Conservation and Parks Drinking Water and Environmental Compliance Division, West Central Region	Barbara Slattery	Email	August 15, 2019	<p><u>Groundwater Impact Assessment</u> Based on groundwater levels it is assumed dewatering will be required, however, the locations of dewatering were not identified. Recommended conceptual cross sections be prepared detailing possible dewatering locations, discharge options to the environment with possible impacts, and mitigation. A recommendation for the types of studies, monitoring and contingency plans should be included. Monitoring program should include domestic water users.</p> <p>The recommended assessment for surface water permit should also consider the impact of surface water taking on shallow groundwater, if there are shallow domestic water wells in the overburden and in areas where any surface water body is fed by groundwater discharge or vice versa.</p> <p>The ER did not recommend any monitoring program or mitigation measures for the protection of areas of significant groundwater recharge. MECP expects the information referred to will be included as supporting documentation for a Permit to Take Water or Environmental Activity and Sector Registry.</p> <p><u>Surface Water Impact Assessment</u> Dewatering locations and surface water discharge options during construction should be identified along with the water quantity and quality impacts and adverse effects to the ecological receptors of the receiving waterbodies as part of the Permit to Take Water (PTTW) application process.</p> <p>The ER did not provide any discussion/plans to develop monitoring program(s) to assess and maintain the surface water quality and quantity for the potentially affected surface water bodies because of this work. This should be considered as part of the PTTW application process.</p> <p><u>Waste management</u> Section 4.4.7 provides very general comments on how wastes generated by the project will be handled. Missing from this is explicit mention that the proponent will adhere to all the requirements of O. Reg. 347 and not just labeling and secure containment.</p> <p><u>Species at Risk</u> The ER provides information on the both flora and fauna within the study area based on existing data review. It also notes that field investigations taking place 2019/2020 will be used to refine the data. The ER also states that once field surveys are completed, a report that shows mitigation and protection will be submitted to MECP to determine regulatory requirements. This is acceptable and the report can be submitted to this office once it is complete.</p>	September 4, 2019	<p>Stantec will complete a desktop-based background review of the available data and characterize existing conditions, estimate groundwater dewatering rates, identification of groundwater recharge and discharge areas and sensitive ecosystems and identify private wells. A meeting will be held with MECP on the proposed PTTW permitting approach. A Hydrogeological Assessment Report will be prepared as a supporting document for a PTTW application. Two site visits are anticipated to develop and complete hydraulic conductivity testing.</p> <p>A dewatering contractor will be retained by Enbridge Gas to control groundwater seepage and facilitate the pipeline construction at a variety of locations.</p> <p>A baseline monitoring program is intended to establish existing groundwater conditions, for comparative purposes, should groundwater interference complaints arise as a result of the construction and/or operation of the proposed pipeline.</p> <p>All recommendations will be taken into account during the PTTW application process.</p> <p>Enbridge Gas will adhere to all the requirements of O. Reg. 347.</p> <p>Stantec will submit to MECP a report documenting results of field surveys and mitigation and protection measures with respect to SAR once completed</p>
2	Conservation Halton	Cassandra Connelly	Email	August 19, 2019	<p>MECP accepts Stantec's September 4, 2019 response to MECP comments to have Stantec incorporate/address all geological/hydrogeological/groundwater related concerns in the upcoming "Hydrogeological Assessment Report" as part of a future Permit To Take Water for the project. Stantec has also provided an outline/contents of the "Hydrogeological Assessment Report", which is satisfactory with respect to our earlier comments.</p> <p>MECP noted no further concerns at this stage, given there future review and permitting role.</p> <p>Permits will be required for work in CH regulated areas. Included a Complete Application Checklist, noted six separate permit applications will be required and provided the locations.</p>	August 19, 2019	<p>No response required.</p> <p>Thanked CH for comments on the ER and looking forward to working with CH during the permitting process.</p>
3	Hamilton Region Conservation Authority	Darren Kenny	Email	August 20, 2019	<p>A permit will be required for work in HCA regulated areas.</p> <p>Requested Terms of Reference for ecological surveys to be conducted.</p> <p>Noted that no potential dewatering impacts to adjacent wetland communities and watercourses were included in the report.</p> <p>Imported topsoil must be free of invasive species and clean equipment protocols should be part of construction procedures. Class 1 or 2 Clean Fill taken from sites where invasive species are present is still considered contaminated and not acceptable to use adjacent to natural features.</p> <p>HCA has GPS coordinates for a butternut tree along the corridor.</p> <p>Appendix D-1 seems premature without field studies completed. Recommended Stantec review two documents on alvars. Recommended Whip-poor-will and Blanding's Turtle surveys. Noted monarch butterflies use the pipeline corridor.</p> <p>Acknowledged report recognizes potential changes to the Fisheries Act and should be revised based on changes to the Fisheries Act.</p> <p>Requested information source of Stream Crossing #1.</p> <p>Watercourse crossing mitigation should include a coldwater timing window.</p> <p>Permanent erosion and sediment control measures should be 100% biodegradable.</p> <p>Recommended metric units be used exclusively in the report.</p>	September 6, 2019	<p>No ecological surveys have been completed to-date. Surveys are planned for September/October 2019 and spring/summer 2020. The Environmental Report (ER) was completed under the Ontario Energy Board Act with a focus on the Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario. The review of the ER was intended to be from the Ontario Energy Board Act and not from the perspective of the Ontario Planning Act. Typically, under the Ontario Energy Board process Terms of Reference for ecological surveys are not prepared. Stantec can provide the ecological survey work program and results to the Hamilton Conservation Authority if interested.</p> <p>A dewatering contractor will be retained by Enbridge Gas to control groundwater seepage and facilitate the pipeline construction at a variety of locations including the area east of the Kirkwall valve site and Spencer Creek. Prior to construction, the dewatering contractor will provide a formal dewatering plan. A Hydrogeological Assessment Report will also be prepared.</p> <p>It is not anticipated that topsoil will be imported to site and all soil excavated and stockpiled during construction is intended to be reused on each site and not transferred between properties. Equipment used will be clean and free of soil and plant material prior to arrival on site. A clean equipment protocol is part of best construction practices and will form part of the Environmental Protection Plan for the Project.</p> <p>Stantec will be interested and appreciate the GPS coordinates of the butternut tree.</p> <p>Stantec will review the documents and any alvars within the vicinity of the pipeline easement will be documented as part of the Ecological Land Classification survey.</p> <p>If suitable habitat for Whip-poor-will is found during the ecological field studies program, surveys can be conducted.</p> <p>Blanding's Turtle basking surveys will be completed as part of the ecological field studies program. All monarch butterfly observations will be noted during the ecological field studies program.</p> <p>Mitigation measures will be reviewed and confirmed to be consistent with the revised Fisheries Act during the permitting process.</p> <p>Land Information Ontario was the source of the unnamed tributary of Spencer Creek.</p> <p>The coldwater timing window for Spencer Creek would be July 15 to September 30 (no in-water work from October 1 to July 14). However, the appropriate timing window for Spencer Creek will be applied once approval under the Endangered Species Act has been obtained from the Ministry of Environment, Conservation, and Parks (MECP) during the permitting process.</p> <p>Enbridge Gas will source permanent erosion and sediment control measures that are 100% biodegradable. Where appropriate non-biodegradable sediment and erosion control measures may be used (e.g. retaining walls, boulder toe protection). Permits and approvals for such measures will be requested should they be located within lands regulated by HCA or other conservation authorities.</p>

1 **LAND MATTERS**

2 The purpose of this section of evidence is to provide an overview of land rights required  
3 for the Project, the Enbridge Gas forms of easement and of temporary land use and the  
4 status of outreach and negotiations with affected landowners.

5  
6 This Tab of evidence is organized as follows:

- 7 1. Land Rights for the Project
- 8 2. Proposed Pipeline Easement Requirements
- 9 3. Landowner Issues
- 10 4. Negotiation of Land Rights
- 11 5. Construction Monitoring and Follow-up

12  
13 **1. Land Rights for the Project**

14 Drawings showing the proposed Kirkwall to Hamilton Pipeline location are provided at  
15 Exhibit A, Tab 11, Schedule 1. The names and addresses of landowners have been  
16 removed from this schedule to safeguard landowner privacy. The proposed pipeline is  
17 approximately 10.2 kilometers in length requiring approximately 28.56 hectares  
18 (70.57 acres) of permanent easement.

19  
20 Enbridge Gas has acquired land rights to 21.42 hectares (52.93 acres) of the required  
21 permanent easement. Enbridge Gas will also require approximately 26.33 hectares  
22 (65.06 acres) of temporary easement for construction and top soil storage purposes.

1 Enbridge Gas has initiated meetings with the landowners from whom either permanent  
2 or temporary land rights are required and will continue to meet with them to obtain  
3 options to acquire all the necessary lands.

4

## 5 **2. Proposed Pipeline Easement Requirements**

6 A list of the properties and the approximate dimensions of permanent easements and  
7 temporary easements required for the Project is outlined in Exhibit A, Tab 11,  
8 Schedule 2. The names and addresses shown on this schedule have been redacted to  
9 safeguard landowner privacy.

10

11 The Enbridge Gas form of Pipeline Easement is attached at Exhibit A, Tab 11,  
12 Attachment 1. The form of Pipeline Easement is consistent with those provided to the  
13 OEB and used by Enbridge Gas (formerly Union Gas Limited) in the past on similar  
14 pipeline projects. This agreement covers the installation, operation, and maintenance of  
15 one pipeline. The major restrictions imposed on the landowner by the agreement are  
16 that the landowner cannot erect buildings or privacy fencing on the easement. In  
17 addition, the landowner cannot excavate on the easement or install field tile without  
18 prior notification to Enbridge Gas. The landowner is free to farm the easement or turn  
19 the easement into a laneway.

20

21 The Enbridge Gas form of Temporary Land Use Agreement is attached at Exhibit A,  
22 Tab 11, Attachment 2. The Temporary Land Use Agreement is in a form consistent with

1 those provided to the OEB and used by Enbridge Gas (formerly Union Gas Limited) in  
2 the past on similar pipeline projects. These agreements typically apply for a period of  
3 two years, beginning in the year of construction. This allows Enbridge Gas an  
4 opportunity to return in the year following construction to perform further clean-up work  
5 as required.

6

### 7 **3. Landowner Issues**

8 Enbridge Gas will implement a comprehensive program to provide landowners, tenants  
9 and other interested parties with information regarding the Project. Information was  
10 previously distributed through correspondence and meetings with the public. Where  
11 formal public meetings were held, in conjunction with the ER, directly-affected  
12 landowners and agencies were invited by letter while notification to the public was made  
13 through newspaper advertisements.

14

### 15 **4. Negotiation of Land Rights**

16 Enbridge Gas is in the process of obtaining early access from landowners to conduct  
17 preliminary surveys. Enbridge Gas commenced easement negotiations with individual  
18 landowners in 2019. Preliminary discussions have not identified any strong objection to  
19 the Project. Enbridge Gas will have all land rights in place prior to construction.

20

1 **5. Construction Monitoring and Follow-up**

2 Enbridge Gas has a comprehensive and proven landowner relations program in place.  
3 The key elements of this program include a complaint tracking system and assignment  
4 of an LRA to ensure that: commitments made to landowners are fulfilled, to address  
5 questions and concerns of landowners and to act as a liaison between landowners, the  
6 Pipeline Contractor and Enbridge Gas Project personnel.

7  
8 The Enbridge Gas Complaint Resolution System will be used for this Project to record,  
9 monitor, and ensure follow-up on any complaint or issue received by Enbridge Gas  
10 related to construction. This process assists in resolving complaints and tracking the  
11 fulfillment of commitments. A process chart and explanatory notes describing the  
12 Complaint Resolution System are found at Exhibit A, Tab 11, Attachment 3. In addition  
13 to the LRA's duties during construction, the LRA will also conduct post-construction  
14 interviews to capture any outstanding concerns, including damages, so that they can be  
15 resolved and will capture landowner comments so that they may be considered in the  
16 planning of future projects.

17  
18 When cleanup is completed, landowners will be asked by Enbridge Gas to sign a clean-  
19 up acknowledgement form if satisfied with the clean-up. This form, when signed,  
20 releases the Pipeline Contractor allowing payment for clean-up on the property. This  
21 form in no way releases Enbridge Gas from its obligation for tile repairs, compensation

- 1 for damages and/or further clean-up as required due to erosion or subsidence directly
- 2 related to pipeline construction.

PROPOSED PROJECT LOCATION MAP

A B C D E F G H J K L M N O P Q

1

2

3

4

5

CITY OF HAMILTON

KIRKWALL VALVE SITE  
17V-302V

72m X 226m  
BONEYARD

10m X 506m ACCESS

15m X 31m  
(IRR) TLU

TRANSCANADA  
PIPELINES  
STATION

15m X 189m IRR TLU

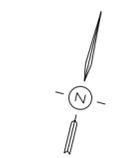
28.0m PROPOSED PERMANENT EASEMENT

PIN: 175370028

PIN: 175370022

VALENS RD

ACCESS LANEWAY  
FROM SAFARI ROAD



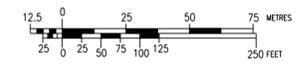
PIN: 175370041

MATCH LINE  
AA-AA

LEGEND

- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -

Filed: 2019-11-01  
EB-2019-0159  
Exhibit A  
Tab 11  
Schedule 1  
Page 2 of 11



DESIGN PARAMETERS

DESIGN  
- DESIGNED TO CSA Z662-15  
- DESIGN FACTOR - 0.8  
- LOCATION FACTOR - \*\*  
- DESIGN TEMPERATURE - M5C  
- DESIGN PRESSURE - 6040 kPa

TEST PRESSURE  
- MINIMUM - \*\*\*\*kPa  
- MAXIMUM - \*\*\*\*kPa  
- TEST DATE: -----

A	2019-06-20	N.C.	B.N.W.	OEB FILING
No.	DATE	BY	APPD	REMARKS

REVISIONS



T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION  
GENERAL LOCATIONS - CITY OF HAMILTON  
MATCH LINE START TO AA-AA

DRAWN BY	NICO CARIATI	DATE	2019-01-18	PLOT SPEC:	1:2000
CHECKED BY	OLIVIA CURTI	DATE	2019-06-20	CAD CODE:	PL2591-OEB-01A.dgn
APPROVED BY	BLAIR WARNOCK	DATE	2019-06-20	FILE REVISION DATE	2019-06-20

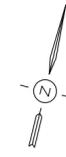
PRELIMINARY

SIZE STRIP SHEET N/A DRAWING No. PL2591-OEB-01A

A B C D E F G H J K L M N O P Q

A B C D E F G H J K L M N O P Q

1



CITY OF HAMILTON

**LEGEND**

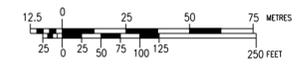
- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -

Filed: 2019-11-01  
 EB-2019-0159  
 Exhibit A  
 Tab 11  
 Schedule 1  
 Page 3 of 11

2

PIN: 175370031

PIN: 175370040



3

PIN: 175370041

PIN: 175370136

PIN: 175370035

MATCH LINE  
AA-AA

MATCH LINE  
BB-BB

**DESIGN PARAMETERS**

**DESIGN**  
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 - DESIGN FACTOR - 0.8  
 - LOCATION FACTOR - \*\*  
 - DESIGN TEMPERATURE - M5C  
 - DESIGN PRESSURE - 6040 kPa

**TEST PRESSURE**  
 - MINIMUM - \*\*\*\*kPa  
 - MAXIMUM - \*\*\*\*kPa  
 - TEST DATE: -----

No.	DATE	BY	APPD	REMARKS
A	2019-06-20	N.C.	B.N.W.	OEB FILING

4

PROPOSED NPS 48 PIPELINE

15m x 187m TLU

15m x 11m TLU

15m x 379m TLU

PROPOSED NPS 48 PIPELINE

47m x 875m TLU

PIN: 175370037

PIN: 175370039

HYDRO EASEMENT

ACCESS LANEWAY FROM SAFARI ROAD

PIN 175370135

PIN: 175370136

PRELIMINARY

ENGINEER: BLAIR WARNOCK

T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION  
 GENERAL LOCATIONS - CITY OF HAMILTON  
 MATCH LINE AA-AA TO BB-BB

DRAWN BY	NICO CARIATI	DATE	2019-01-18	PLOT SPEC:	1:2000
CHECKED BY	OLIVIA CURTI	DATE	2019-06-20	CAD CODE:	PL2591-OEB-02A.dgn
APPROVED BY	BLAIR WARNOCK	DATE	2019-06-20	FILE REVISION DATE	2019-06-20

SIZE	SHEET	DRAWING No.
STRIP	N/A	PL2591-OEB-02A

5

A B C D E F G H J K L M N O P Q

CITY OF HAMILTON

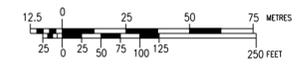
1  
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LEGEND

- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -

Filed: 2019-11-01  
EB-2019-0159  
Exhibit A  
Tab 11  
Schedule 1  
Page 4 of 11



DESIGN PARAMETERS

DESIGN  
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 - DESIGN FACTOR - 0.8  
 - LOCATION FACTOR - \*\*  
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 - DESIGN PRESSURE - 6040 kPa

TEST PRESSURE  
 - MINIMUM - \*\*\*\*kPa  
 - MAXIMUM - \*\*\*\*kPa  
 - TEST DATE: - - - - -

No.	DATE	BY	APPD	REMARKS
A	2019-06-20	N.C.	B.N.W.	OEB FILING

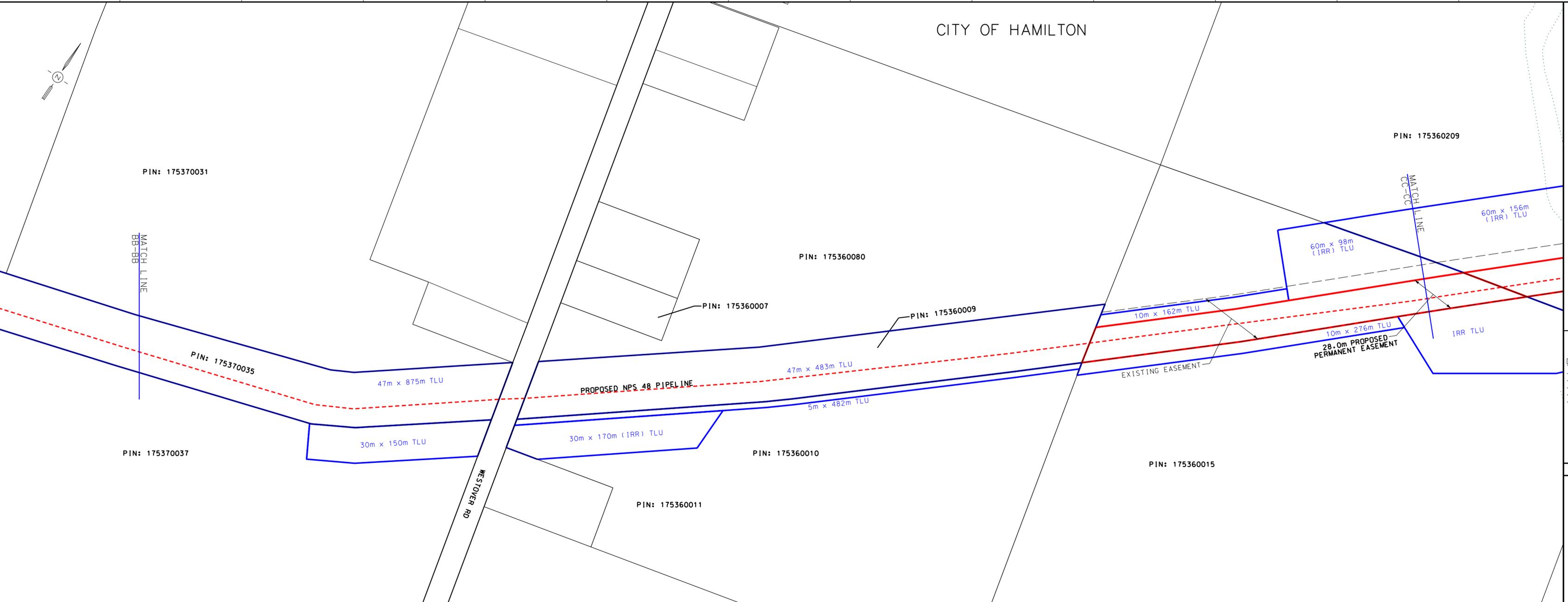
ENGINEER: BLAIR WARNOCK

PRELIMINARY

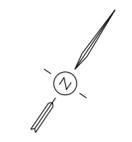
**ENBRIDGE**  
Life Takes Energy<sup>®</sup>

T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION  
GENERAL LOCATIONS - CITY OF HAMILTON  
MATCH LINE BB-BB TO CC-CC

DRAWN BY NICO CARIATI	DATE 2019-01-18	PLOT SPEC: 1:2000
CHECKED BY OLIVIA CURTI	DATE 2019-06-20	CAD CODE: PL2591-OEB-03A.dgn
APPROVED BY BLAIR WARNOCK	DATE 2019-06-20	FILE REVISION DATE 2019-06-20
SIZE STRIP	SHEET N/A	DRAWING No. PL2591-OEB-03A



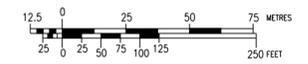
CITY OF HAMILTON



LEGEND

- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -

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 EB-2019-0159  
 Exhibit A  
 Tab 11  
 Schedule 1  
 Page 5 of 11



DESIGN PARAMETERS

DESIGN  
 - DESIGNED TO CSA Z662-15  
 - DESIGN FACTOR - 0.8  
 - LOCATION FACTOR - \*\*  
 - DESIGN TEMPERATURE - M5C  
 - DESIGN PRESSURE - 6040 kPa

TEST PRESSURE  
 - MINIMUM - \*\*\*\*kPa  
 - MAXIMUM - \*\*\*\*kPa  
 - TEST DATE: - - - - -

No.	DATE	BY	APPD	REMARKS
A	2019-06-20	N.C.	B.N.W.	OEB FILING

REVISIONS

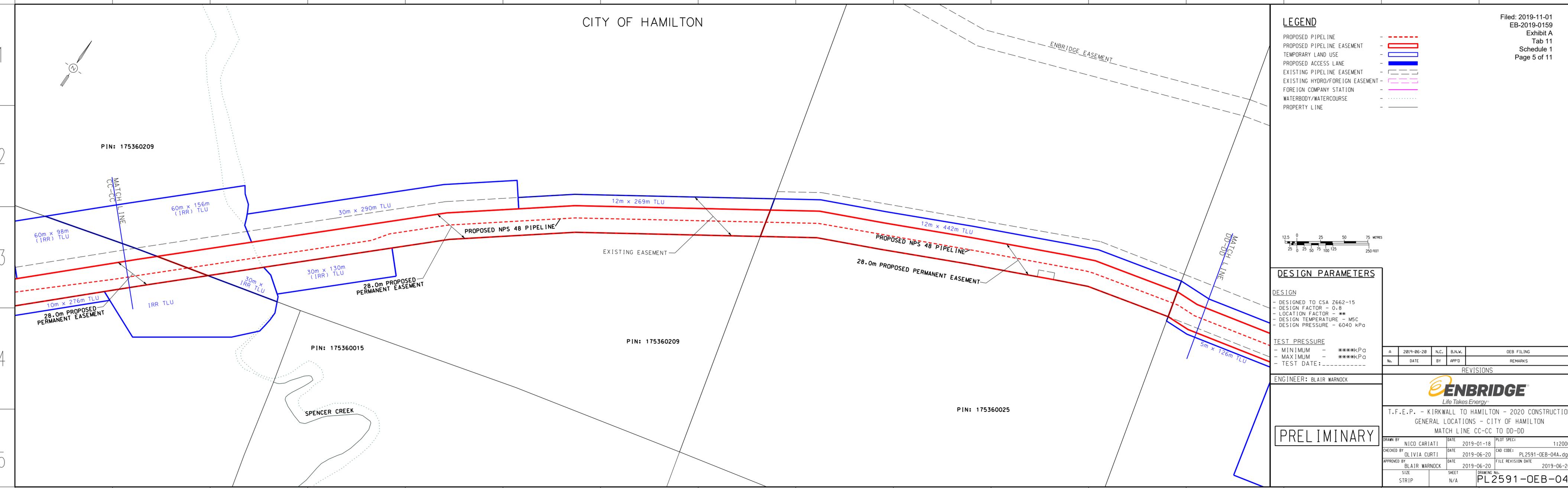
DATE	BY	APPD	REMARKS

PRELIMINARY



T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION  
 GENERAL LOCATIONS - CITY OF HAMILTON  
 MATCH LINE CC-CC TO DD-DD

DRAWN BY NICO CARIATI	DATE 2019-01-18	PLOT SPEC: 1:2000
CHECKED BY OLIVIA CURTI	DATE 2019-06-20	CAD CODE: PL2591-OEB-04A.dgn
APPROVED BY BLAIR WARNOCK	DATE 2019-06-20	FILE REVISION DATE 2019-06-20
SIZE STRIP	SHEET N/A	DRAWING No. PL2591-OEB-04A



A B C D E F G H J K L M N O P Q

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A B C D E F G H J K L M N O P Q

ENBRIDGE EASEMENT

CITY OF HAMILTON

PIN: 175360037

PIN: 175360036

PIN: 175360089

PIN: 175360097

PIN: 175360090

PIN: 175360091

PIN: 175360096

PROPOSED NPS 48 PIPELINE

25m x 453m TLU

10m x 453m TLU

40m (IRR) x 150m TLU

48m x 421m TLU

5m (IRR) x 190m FEE  
10m x 125m TLU

45m x 65m TLU

5m (IRR) x 231m FEE

28.0m PROPOSED PERMANENT EASEMENT

EXISTING EASEMENT

125m x 300m TLU

PIN: 175360029

PIN: 175360251

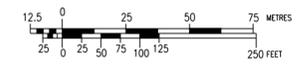
MIDDLE TOWN RD



**LEGEND**

- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -

Filed: 2019-11-01  
EB-2019-0159  
Exhibit A  
Tab 11  
Schedule 1  
Page 6 of 11



**DESIGN PARAMETERS**

- DESIGN**
- DESIGNED TO CSA Z662-15
  - DESIGN FACTOR - 0.8
  - LOCATION FACTOR - \*\*
  - DESIGN TEMPERATURE - M5C
  - DESIGN PRESSURE - 6040 kPa
- TEST PRESSURE**
- MINIMUM - \*\*\*\*kPa
  - MAXIMUM - \*\*\*\*kPa
  - TEST DATE: -----

No.	DATE	BY	APPD	REMARKS
A	2019-06-20	N.C.	B.N.W.	OEB FILING

ENGINEER: BLAIR WARNOCK



T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION  
GENERAL LOCATIONS - CITY OF HAMILTON  
MATCH LINE DD-DD TO EE-EE

**PRELIMINARY**

DRAWN BY	NICO CARIATI	DATE	2019-01-18	PLOT SPEC:	1:2000
CHECKED BY	OLIVIA CURTI	DATE	2019-06-20	CAD CODE:	PL2591-OEB-05A.dgn
APPROVED BY	BLAIR WARNOCK	DATE	2019-06-20	FILE REVISION DATE	2019-06-20
SIZE	STRIP	SHEET	N/A	DRAWING No.	PL2591-OEB-05A

A B C D E F G H J K L M N O P Q



PIN: 175360097

MATCH LINE  
EE-EE

48m x 421m TLU  
5m (IRR) x 231m FEE

PIN: 175360090  
UNION GAS LIMITED:

PIN: 175360096

PROPOSED NPS 48 PIPELINE  
10m x 427m TLU

EXISTING EASEMENT

CITY OF HAMILTON

ACCESS LANEWAY  
TO CONCESSION ROAD 8

UNNAMED TRIBUTARY TO BRONTE CREEK

PIN: 175360103

PIN: 175360108

PROPOSED NPS 48 PIPELINE  
15m x 261m TLU

28.0m PROPOSED PERMANENT EASEMENT

10m x 442m TLU

10m x 235m TLU

28.0m PROPOSED  
PERMANENT EASEMENT

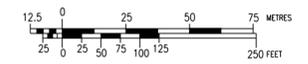
PIN: 175360111

MATCH LINE  
FF-FF

**LEGEND**

- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -

Filed: 2019-11-01  
EB-2019-0159  
Exhibit A  
Tab 11  
Schedule 1  
Page 7 of 11



**DESIGN PARAMETERS**

**DESIGN**  
 - DESIGNED TO CSA Z662-15  
 - DESIGN FACTOR - 0.8  
 - LOCATION FACTOR - \*\*  
 - DESIGN TEMPERATURE - M5C  
 - DESIGN PRESSURE - 6040 kPa

**TEST PRESSURE**  
 - MINIMUM - \*\*\*\*kPa  
 - MAXIMUM - \*\*\*\*kPa  
 - TEST DATE: - - - - -

ENGINEER: BLAIR WARNOCK

No.	DATE	BY	APPD	REMARKS
A	2019-06-20	N.C.	B.N.W.	OEB FILING

REVISIONS



T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION  
 GENERAL LOCATIONS - CITY OF HAMILTON  
 MATCH LINE EE-EE TO FF-FF

DRAWN BY	NICO CARIATI	DATE	2019-01-18	PLOT SPEC:	1:2000
CHECKED BY	OLIVIA CURTI	DATE	2019-06-20	CAD CODE:	PL2591-OEB-06A.dgn
APPROVED BY	BLAIR WARNOCK	DATE	2019-06-20	FILE REVISION DATE	2019-06-20

SIZE STRIP SHEET N/A DRAWING No. PL2591-OEB-06A

PRELIMINARY

A B C D E F G H J K L M N O P Q

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A B C D E F G H J K L M N O P Q



CITY OF HAMILTON

16m ACCESS LANEWAY TO CONCESSION ROAD 8

7.62m (25') RIGHT OF WAY

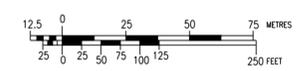
MATCH LINE GG-GG

MATCH LINE FF-FF

**LEGEND**

- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -

Filed: 2019-11-01  
 EB-2019-0159  
 Exhibit A  
 Tab 11  
 Schedule 1  
 Page 8 of 11



**DESIGN PARAMETERS**

- DESIGN**
- DESIGNED TO CSA Z662-15
  - DESIGN FACTOR - 0.8
  - LOCATION FACTOR - \*\*
  - DESIGN TEMPERATURE - M5C
  - DESIGN PRESSURE - 6040 kPa
- TEST PRESSURE**
- MINIMUM - \*\*\*\*kPa
  - MAXIMUM - \*\*\*\*kPa
  - TEST DATE: - - - - -

No.	DATE	BY	APPD	REMARKS
A	2019-06-20	N.C.	B.N.W.	OEB FILING

**REVISIONS**

ENGINEER: BLAIR WARNOCK

T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION  
 GENERAL LOCATIONS - CITY OF HAMILTON  
 MATCH LINE FF-FF TO GG-GG

DRAWN BY	NICO CARIATI	DATE	2019-01-18	PLOT SPEC:	1:2000
CHECKED BY	OLIVIA CURTI	DATE	2019-06-20	CAD CODE:	PL2591-OEB-07A.dgn
APPROVED BY	BLAIR WARNOCK	DATE	2019-06-20	FILE REVISION DATE	2019-06-20
SIZE	STRIP	SHEET	N/A	DRAWING No.	PL2591-OEB-07A

**PRELIMINARY**

1  
2  
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4  
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PIN: 175360111

PIN: 175360118

PIN: 175360117

PIN: 175360116

PIN: 175360121

PIN: 175360207

PIN: 175360133

PIN: 175360131

PIN: 175360132

PIN: 175360143

PIN: 175360144

190m x 280m (IRR) TLU

63m x 415m TLU

30m x 190m TLU

25m x 152m TLU

150m x 223m (IRR) TLU

32m x 121m TLU

48m x 239m TLU

10m x 235m TLU

PROPOSED NPS 48 PIPELINE

5m (IRR) x 238m TEE

28.0m PROPOSED PERMANENT EASEMENT

UNNAMED TRIBUTARY TO BRONTE CREEK

UNNAMED TRIBUTARY TO BRONTE CREEK

EXISTING EASEMENT

EXISTING EASEMENT

22.0m PROPOSED PERMANENT EASEMENT

45°

45°

A B C D E F G H J K L M N O P Q

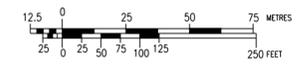


CITY OF HAMILTON

**LEGEND**

- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -

Filed: 2019-11-01  
 EB-2019-0159  
 Exhibit A  
 Tab 11  
 Schedule 1  
 Page 9 of 11



**DESIGN PARAMETERS**

- DESIGN**
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  - DESIGN FACTOR - 0.8
  - LOCATION FACTOR - \*\*
  - DESIGN TEMPERATURE - M5C
  - DESIGN PRESSURE - 6040 kPa
- TEST PRESSURE**
- MINIMUM - \*\*\*\*kPa
  - MAXIMUM - \*\*\*\*kPa
  - TEST DATE: -----

No.	DATE	BY	APPD	REMARKS
A	2019-06-20	N.C.	B.N.W.	OEB FILING

**REVISIONS**

T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION GENERAL LOCATIONS - CITY OF HAMILTON MATCH LINE GG-GG TO HH-HH			
DRAWN BY	DATE	PLOT SPEC:	
NICO CARIATI	2019-01-18	1:2000	
CHECKED BY	DATE	CAD CODE:	
OLIVIA CURTI	2019-06-20	PL2591-OEB-08A.dgn	
APPROVED BY	DATE	FILE REVISION DATE	
BLAIR WARNOCK	2019-06-20	2019-06-20	
SIZE	SHEET	DRAWING No.	
STRIP	N/A	PL2591-OEB-08A	

**PRELIMINARY**

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PIN: 175360133

PIN: 175360143

PIN: 175340098

PIN: 175340092

PIN: 175340029

PIN: 175340030

PIN: 175340034

PIN: 175360144

PIN: 175340014

PIN: 175340099

PIN: 175340026

PIN: 175360131

BROCK RD

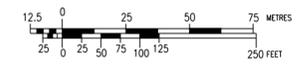
A B C D E F G H J K L M N O P Q

CITY OF HAMILTON

**LEGEND**

- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -

Filed: 2019-11-01  
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 Schedule 1  
 Page 10 of 11



**DESIGN PARAMETERS**

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  - LOCATION FACTOR - \*\*
  - DESIGN TEMPERATURE - M5C
  - DESIGN PRESSURE - 6040 kPa
- TEST PRESSURE**
- MINIMUM - \*\*\*\*kPa
  - MAXIMUM - \*\*\*\*kPa
  - TEST DATE: - - - - -

No.	DATE	BY	APPD	REMARKS
A	2019-06-20	N.C.	B.N.W.	OEB FILING

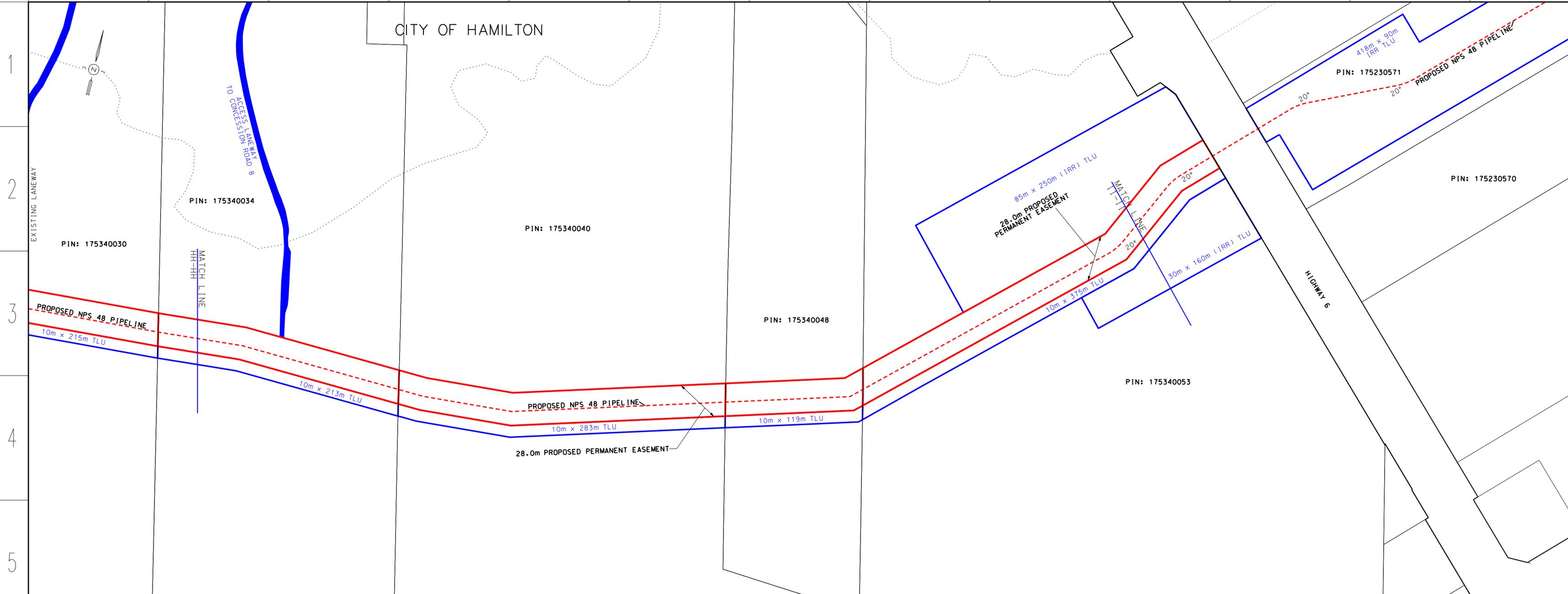
**REVISIONS**

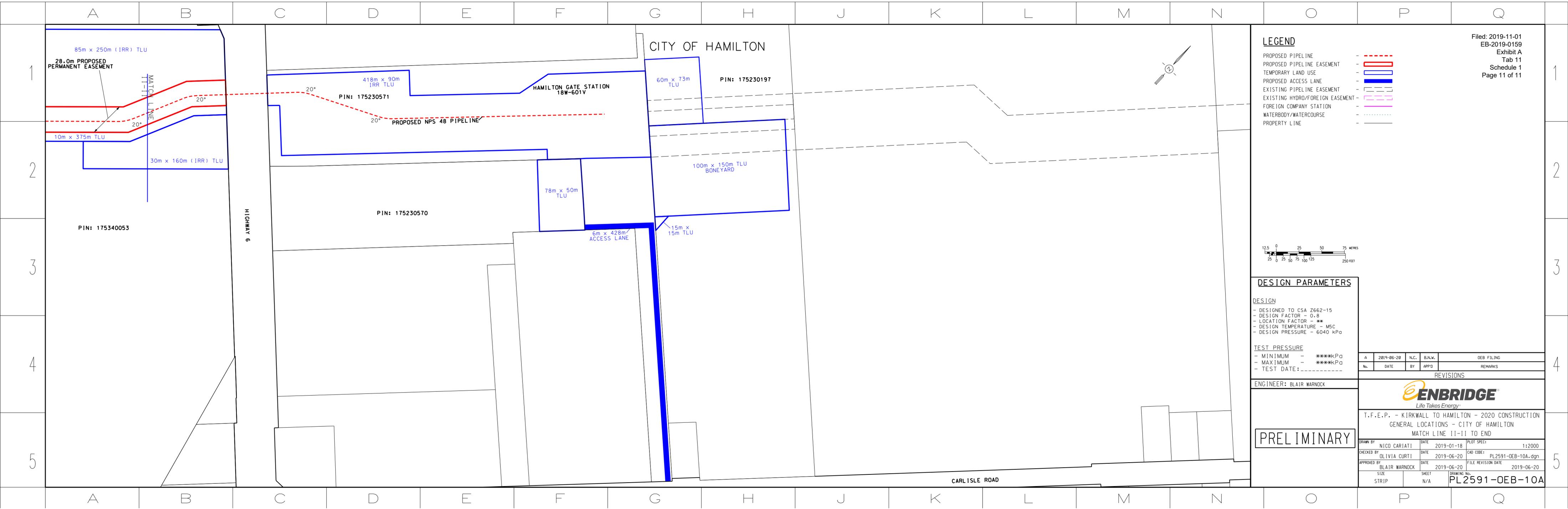
**ENBRIDGE**  
*Life Takes Energy*

T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION  
 GENERAL LOCATIONS - CITY OF HAMILTON  
 MATCH LINE HH-HH TO 11-11

DRAWN BY	NICO CARIATI	DATE	2019-01-18	PLOT SPEC:	1:2000
CHECKED BY	OLIVIA CURTI	DATE	2019-06-20	CAD CODE:	PL2591-OEB-09A.dgn
APPROVED BY	BLAIR WARNOCK	DATE	2019-06-20	FILE REVISION DATE	2019-06-20
SIZE	STRIP	SHEET	N/A	DRAWING No.	PL2591-OEB-09A

**PRELIMINARY**

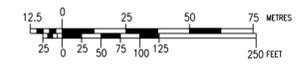




Filed: 2019-11-01  
 EB-2019-0159  
 Exhibit A  
 Tab 11  
 Schedule 1  
 Page 11 of 11

**LEGEND**

- PROPOSED PIPELINE - - - - -
- PROPOSED PIPELINE EASEMENT - - - - -
- TEMPORARY LAND USE - - - - -
- PROPOSED ACCESS LANE - - - - -
- EXISTING PIPELINE EASEMENT - - - - -
- EXISTING HYDRO/FOREIGN EASEMENT - - - - -
- FOREIGN COMPANY STATION - - - - -
- WATERBODY/WATERCOURSE - - - - -
- PROPERTY LINE - - - - -



**DESIGN PARAMETERS**

- DESIGN**
- DESIGNED TO CSA Z662-15
  - DESIGN FACTOR - 0.8
  - LOCATION FACTOR - \*\*
  - DESIGN TEMPERATURE - M5C
  - DESIGN PRESSURE - 6040 kPa
- TEST PRESSURE**
- MINIMUM - \*\*\*\*kPa
  - MAXIMUM - \*\*\*\*kPa
  - TEST DATE: -----

No.	DATE	BY	APPD	REMARKS
A	2019-06-20	N.C.	B.N.W.	OEB FILING

ENGINEER: BLAIR WARNOCK

**PRELIMINARY**

**ENBRIDGE**  
*Life Takes Energy*

T.F.E.P. - KIRKWALL TO HAMILTON - 2020 CONSTRUCTION  
 GENERAL LOCATIONS - CITY OF HAMILTON  
 MATCH LINE 11-11 TO END

DRAWN BY	NICO CARIATI	DATE	2019-01-18	PLOT SPEC:	1:2000
CHECKED BY	OLIVIA CURTI	DATE	2019-06-20	CAD CODE:	PL2591-OEB-10A.dgn
APPROVED BY	BLAIR WARNOCK	DATE	2019-06-20	FILE REVISION DATE	2019-06-20
SIZE	STRIP	SHEET	N/A	DRAWING No.	PL2591-OEB-10A

Lands and Easements

PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	FEE & PERMANENT EASEMENT			TEMPORARY EASEMENT			MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS	
			Length	x	Width	Area Hectares	Length	x			Width
VALENS ROAD											
17537-0022		PT LT 25, CON 7 BEVERLY ; FLAMBOROUGH CITY OF HAMILTON	225.84 479.18	X X	71.93 10	1.633 0.479				UNION GAS OWNED PROPERTY	
17537-0028		PT LT 26, CON 7 BEVERLY , AS IN AB196382 ; LT 27, CON 7 BEVERLY , EXCEPT 62R264 ; S/T AB22087,AB31363, AB42888,BV21027,BV21052,HL276 8,VM53130,VM82783 FLAMBOROUGH CITY OF HAMILTON	741.88	x	28	2.064	466.54 275.06 30.40 189.33	x x x x	15 62.29 15 15	0.7 1.519 0.045 0.289	
17537-0041		PT LTS 27 & 28, CON 7 BEVERLY , PART 1, 2, 3, 4, 5, 6 & 7 , 62R264 ; S/T AB31363,AB42888,BV21027,HL276 8, VM85636 FLAMBOROUGH CITY CF HAMILTON	187.39	x	28	0.5250	187.40	x	15	0.281	
17537-0136		LOT 28, CONCESSION 7 BEVERLY, EXCEPT 62R264 & PARTS 2-9 2R20482; PART LOT 29, CONCESSION 7 AS IN HL117193, BEVERLEY CITY OF HAMILTON	10.30	x	28	0.029	10.75	x	15	0.016	

PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	FEE & PERMANENT EASEMENT			TEMPORARY EASEMENT			MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
			Dimensions (Metres) Area		Hectares	Dimensions (Metres) Area		Hectares		
			Length	x Width			Length		x Width	
17537-0135		PART LOT 28, CONCESSION 7, PARTS 2-9, 62R20482 BEVERLY SUBJECT TO AN EASEMENT OVER PARTS 2 & 3, 62R20482 AS IN AB42888 SUBJECT TO AN EASEMENT OVER PARTS 3 & 4, 62R20482 AS IN VM82783 SUBJECT TO AN EASEMENT OVER PARTS 3 & 4, 62R20482 AS IN VM53113 SUBJECT TO AN EASEMENT OVER PART 6, 62R20482 AS IN BV21027 SUBJECT TO AN EASEMENT OVER PART 8, 62R20482 AS IN CD62606 CITY OF HAMILTON	379.88	x 27.00	1.03	378.67	x 15	0.568		
17537-0037		PT LT 30, CON 7 BEVERLY , PARTS 2 AND 3 ON 62R-11195; S/T BV21053; FLAMBOROUGH CITY OF HAMILTON				150	x 30	0.450		
17537-0035		PT LT 29, CON 7 BEVERLY , PART 1 , 62R11158 ; PT LT 30, CON 7 BEVERLY , PART 1 , 62R11159 ; FLAMBOROUGH CITY OF HAMILTON	875	x 47.32	4.11				UNION GAS OWNED PROPERTY	
WESTOVER ROAD										
17536-0009		PT LT 31, CON 7 BEVERLY , PART 1, 62R11105 ; S/T AB32258 FLAMBOROUGH CITY OF HAMILTON	482.38	x 46.89	2.26				UNION GAS OWNED PROPERTY	
17536-0010		PT LT 31, CON 7 BEVERLY , AS IN CD42260, THAT PART LYING SOUTH OF 62R11105 ; S/T VM218027 ; FLAMBOROUGH ; SUBJECT TO EXECUTION 94-00031, IF ENFORCEABLE. ; SUBJECT TO EXECUTION 94-01078, IF ENFORCEABLE. ; CITY OF HAMILTON				481.78	x 5	0.241		
						150.00	x 30	0.432		
17536-0015		PT LT 32, CON 7 BEVERLY , AS IN CD217173 ; S/T AB42889, VM55767 FLAMBOROUGH CITY OF HAMILTON	348.63	x 28	0.976	162.32	x 10	0.163		
						313.59	x 5	0.157		
						94.61	x 30	0.289		
						90.84	x 60.12	0.570		

EB-2019-0159  
Exhibit /  
Tab 1:  
Schedule:  
Page 2 of 8

PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	FEE & PERMANENT EASEMENT			TEMPORARY EASEMENT			MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
			Length	x Width	Hectares	Length	x Width	Hectares		
17536-0209		PT LTS 32, 33 CON. 7 BEVERLY, PTS 5-14 ON 62R14055; S/T ESMT OVER PT 10 ON 62R-14055 AS IN VM59512, S/T ESMT OVER PT 11 ON 62R-14055 AS IN AB32259, S/T ESMT OVER PTS 5-14 ON 62R-14055 AS IN LT537786, S/T ESMT OVER PT 6 ON 62R-14055 AS IN HL35706; S/T ESMT OVER PT 12 ON 62R-14055 AS IN AB32260, S/T ESMT OVER PT 8 ON 62R-14055 AS IN VM59511, S/T ESMT OVER PT 10 ON 62R-14055 AS IN VM59512, S/T ESMT OVER PTS 5-14 ON 62R-14055 AS IN LT613512; S/T EASEMENT IN GROSS AS IN WE446394; S/T EASEMENT IN GROSS AS IN WE446949; FLAMBOROUGH CITY OF HAMILTON	619.81	X 28	1.736	268.93	X 12	0.321		
						130.00	X 30	0.392		
						290.05	X 30	0.867		
						30.00	X 30	0.086		
						125.81	X 60	0.803		
17536-0025		PT LT 34, CON 7 BEVERLY, PART 2 TO 6, 62R9369; S/T AB37742,HL35705,VM35699,VM58213 FLAMBOROUGH CITY OF HAMILTON	441.43	X 28	1.236	441.07	X 12	0.529		
17536-0029		PT LT 35, CON 7 BEVERLY, AS IN VM16098; S/T AB42890,HL35704,VM71229; FLAMBOROUGH; CITY OF HAMILTON	426.05	X 28	1.192	426.27	X 10	0.432		
						126.08	X 5	0.155		
						301.19	X 125.00	3.764		
17536-0251		PT LT 36 CON 7 BEVERLY BEING PT 3 ON 62R9089; EXCEPT PARTS 1,2 & 3 ON 62R11301 AND PART 1 ON 62R16662; T/W VM61215; FLAMBOROUGH; CITY OF HAMILTON				452.39	X 10	0.452		
						144.90	X 40	0.717		
17536-0036		PT LT 36, CON 7 BEVERLY, PART 1 TO 3, 62R11301; S/T VM61215; S/T AB49509,VM53111 FLAMBOROUGH CITY OF HAMILTON	452.80	X 47.52	2.155					UNION GAS OWNED PROPERTY

MIDDLETOWN ROAD

EB-2019-159  
Exhibit  
Tab 1  
Schedule  
Page 3 of 8

PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	FEE & PERMANENT EASEMENT			TEMPORARY EASEMENT			MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
			Dimensions (Metres) Area		Hectares	Dimensions (Metres) Area		Hectares		
			Length	x Width		Length	x Width			
17536-0090		PT LT 1, CON 7 WEST FLAMBOROUGH , PART 1 , 62R11078 , PT LT 1, CON 7 WEST FLAMBOROUGH , PART 1 , 62R11277 ; S/T AB39977,AB51207,VM53117 FLAMBOROUGH CITY OF HAMILTON	420.57	X 47.55	1.997					UNION GAS OWNED PROPERTY
17536-0091		PT LT 1, CON 7 WEST FLAMBOROUGH , PT 3, 62R6197 EXCEPT PT 1, 62R11078 ; FLAMBOROUGH CITY OF HAMILTON	189.61	X 4.87	0.092	124.53 64.83	X 10 X 44.85	0.124 0.281		
17536-0096		PT LT 1, CON 7 WFLAM, PTS 6 & 7 , 62R2519 , EXCEPT PT 1, 62R11277 ; FLAMBOROUGH CITY OF HAMILTON	231.08	X 4.86	0.112					
17536-0103		PT LT 2, CON 7 WEST FLAMBOROUGH , AS IN VM115723 ; S/T AB44858,AB51206,VM58211 FLAMBOROUGH CITY OF HAMILTON	426.70	X 28	1.195	426.69	X 10	0.427		
17536-0108		PT LT 3, CON 7 WEST FLAMBOROUGH , AS IN CD194540 ; S/T AB44859,HL50414,VM59907 FLAMBOROUGH CITY OF HAMILTON	441.16	X 28	1.235	441.71	X 10	0.440		
17536-0111		PT LT 4, CON 7 WFLAM, AS IN AB209498; S/T & T/W AB209498 ; S/T AB45110,HL61392,VM53118 FLAMBOROUGH CITY OF HAMILTON	234.87	X 28	0.658	234.88	X 10	0.235		
17536-0117		PT LT 4, CON 7 WEST FLAMBOROUGH , PART 1 & 2 , 62R11354 ; S/T VM63629 ; S/T & T/W CD16310 ; S/T AB45111,VM53119 FLAMBOROUGH CITY OF HAMILTON	238.1 238.78	X 24.77 X 10	0.565 0.239					UNION GAS OWNED PROPERTY

EB-2019-0159  
Exhibit  
Tab 1  
Schedule  
Page 4 of 8

PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	FEE & PERMANENT EASEMENT			TEMPORARY EASEMENT			MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
			Length	x Width	Hectares	Length	x Width	Hectares		
17536-0116		PT LT 4, CON 7 WEST FLAMBOROUGH , PART 3 , 62R1464 & THAT PORTION OF PT 18 62R1464 WHICH IS DESCRIBED AS FOLLOWS: COMM AT THE NW CORNER OF PT 4, 62R1464, NLY TO PT 16, 62R1464 EXCEPTING PTS 1 & 2, 62R11354; T/W VM63629 ; S/T & T/W CD16310 ; FLAMBOROUGH CITY OF HAMILTON	237.56	X 3.46	0.102					
17536-0207		PT LT 5 CON 7 WEST FLAMBOROUGH AS IN CD211146. T/W HL172679. S/T VM53120. EX CEPTING PTS 1 AND 2 ON 62R13320: FLAMBOROUGH CITY OF HAMILTON	42.07	X 27.55	0.116					
17536-0121		PT LT 5, CON 7 WEST FLAMBOROUGH , BEING THE N 1/4 OF LT 5, EXCEPT CD99564 ; S/T HL172679 ; S/T CD45112,HL50415,VM58210 FLAMBOROUGH CITY OF HAMILTON	440.970	X 28.000	1.234	116.000	X 50.000	0.760		
17536-0132		PT LT 6, CON 7 WEST FLAMBOROUGH , PARTS 1 & 2 , 62R11284, S/T VM58489 ; S/T CD40294,HL32988 FLAMBOROUGH CITY OF HAMILTON	415.30	X 63.13	2.632					UNION GAS OWNED PROPERTY
17536-0133		PT LTS 5, 6 & 7, CON 7 WEST FLAMBOROUGH , PT RDAL BTN LTS 5 & 7, CON 7 WEST FLAMBOROUGH , AS IN CD240085, LYING N OF 62R11284 ; S/T THE RIGHTS OF OWNERS OF ADJOINING PARCELS, IF ANY, UNDER VM82900 FLAMBOROUGH ;CITY OF HAMILTON				189.43	X 30	0.568		

EB-2019-159  
Exhibit  
Tab 1  
Schedule  
Page 5 of 5

PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	FEE & PERMANENT EASEMENT			TEMPORARY EASEMENT			MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
			Dimensions (Metres) Area		Hectares	Dimensions (Metres) Area		Hectares		
			Length	x Width		Length	x Width			
17536-0143		PT LT 7, CON 7 WEST FLAMBOROUGH , PT RDAL BTN LTS 6&7, CON 7 WFLAM, CLOSED BY BYLAW # 262 (HL252183), PTS 1-4 , 62R11132, ; S/T VM115208, IF ANY ; S/T AB44855,VM55439 FLAMBOROUGH CITY OF HAMILTON	121.20	X 22	0.267	121.05	X 31.83	0.389		
BROCK ROAD										
17534-0098		PT LT 7 CON 7 WEST FLAMBOROUGH, PTS 1,2 AND 3 ON 62R-14814 , S/T EASEMENT OVER PTS 2 & 3 AS IN VM65448, S/T EASEMENT OVER PT 3 AS IN VM53121, S/T AB37598 IF ANY ; FLAMBOROUGH CITY OF HAMILTON	241.25	X 21.39	0.436	241.51	X 10.00	0.241		
17534-0099		PT LT 7 CON 7 WEST FLAMBOROUGH, AS IN CD82079 ; PT LT 7 CON 7 WEST FLAMBOROUGH, PT 1 ON 62R- 11399 ; SAVE AND EXCEPT PTS 1,2 AND 3 ON 62R-14814 ; S/T AB37598 IF ANY ; S/T VM53122,VM65448 ; FLAMBOROUGH CITY OF HAMILTON	IRR	X IRR	0.387	161.59 132.86 52.13	X 34.44 X 15 X 10	0.556 0.199 0.052		
17534-0026		PT LT 8, CON 7 WEST FLAMBOROUGH , PART 1, 2 & 3 , 62R11280 , S/T VM59473 ; S/T AB44857,VM53123 FLAMBOROUGH CITY OF HAMILTON	237.48	X 63.22	1.501					
17534-0092		CONSOLIDATION OF VARIOUS PROPERTIES 1STLY: PT LTS 7 & 8, CON 7 WEST FLAMBOROUGH BEING PTS 1,3 & 4, 62R12252, S/T RT OF WAY OVER PT 4, 62R12252 AS IN VM201609; FLAMBOROUGH 2NDLY: PT LT 8, CON 7 WEST FLAMBOROUGH BEING PT 2, 62R13726; FLAMBOROUGH CITY OF HAMILTON				149.57	X 91.33	1.103		

EB-2019-159  
Exhibit  
Tab 1  
Schedule  
Page 6 of 8

PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	FEE & PERMANENT EASEMENT			TEMPORARY EASEMENT			MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
			Dimensions (Metres) Area		Hectares	Dimensions (Metres) Area		Hectares		
			Length	x Width		Length	x Width			
17534-0025		PT LT 8, CON 7 WEST FLAMBOROUGH , PART 2 , 62R12252 ; FLAMBOROUGH CITY OF HAMILTON				237.06	X	100.00	2.371	
17534-0029		PT LT 8, CON 7 WEST FLAMBOROUGH , PART 1, 2, 3 , 62R12799 ; S/T AB40293, VM56721 ; FLAMBOROUGH CITY OF HAMILTON	190.25	X 28.00	0.533	189.56	X	10.00	0.189	
17534-0030		PT LTS 8 & 9, CON 7 WEST FLAMBOROUGH , AS IN AB189954 ; S/T AB40292,HL38913,VM63479 FLAMBOROUGH CITY OF HAMILTON	212.79	X 28.00	0.596	212.70	X	10.00	0.213	
17534-0034		PT LT 9, CON 7 WEST FLAMBOROUGH , PART 1 , 62R4769 ; S/T AB41671,HL90107,VM55442 ; FLAMBOROUGH; CITY OF HAMILTON	214.69	X 28.00	0.601	214.90	X	10.00	0.215	
17534-0040		PT LT 10, CON 7 WEST FLAMBOROUGH , AS IN CD276936 ; S/T AB41670,HL74482,HL97757,VM531 24,VM65113 FLAMBOROUGH CITY OF HAMILTON	282.90	X 28.00	0.792	283.10	X	10.00	0.283	
17534-0048		PT LT 10, CON 7 WEST FLAMBOROUGH , AS IN VM172873 ; S/T AB44856,HL97757,VM55441 FLAMBOROUGH CITY OF HAMILTON	119.81	X 28.00	0.335	118.93	X	10.00	0.119	
17534-0053		PT LTS 11 & 12, CON 7 WEST FLAMBOROUGH , AS IN HL139614, EXCEPT PTS 1 & 2, MISC PL 2202 ; S/T AB37596, IF ANY ; S/T VM150165,VM154114,VM53125,V M53126 FLAMBOROUGH CITY OF HAMILTON	394.85	X 28.00	1.116	373.31	X	10	0.373	
						100	X	30	0.3	
						250	X	85	0.660	

HIGHWAY 6

EB-2019-0159  
Exhibit /  
Tab 1:  
Schedule:  
Page 7 of 8

PIN	NAME & ADDRESS	PROPERTY DESCRIPTION	FEE & PERMANENT EASEMENT			TEMPORARY EASEMENT			MORTGAGE, LIEN/LEASE &/OR ENCUMBRANCES	REMARKS
			Length	x	Width	Hectares	Length	x		
17523-0571		FIRSTLY: PT LT 13, CON 9 EAST FLAMBOROUGH, PT LT 12, CON 9, EAST FLAMBOROUGH BEING PART 1 ON 62R11323, PART 1 ON 62R11338, PARTS 1 & 2 ON 62R12940, PART 1 ON 62R8272; S/T INTEREST, IF ANY, IN HL21428; S/T AB166558, AB171708, AB37594, HL101295, HL101296, HL23260, HL47489, VM53127, VM53128, VM53129; SECONDLY: PT LT 13, CON 9 EAST FLAMBOROUGH BEING PART 2 ON 62R20054; S/T EASEMENT OVER PT 2 ON PLAN 62R20054 AS IN HL101295, THIRDLY: PT LT 13 CON 9 EAST FLAMBOROUGH PARTS 1 AND 2 ON 62R20208; SUBJECT TO EASEMENT AS IN HL101295 CITY OF HAMILTON	75	x	418					UNION GAS OWNED PROPERTY
17523-0570		PT LT 13, CON 9 EF, AS IN CD242660, EXCEPT PT 1 62R11338, PTS 1 & 2 62R12940 & PTS 1 & 2 62R20208 SUBJECT TO AN EASEMENT AS IN EF14664 SUBJECT TO AN EASEMENT AS IN HL23620 CITY OF HAMILTON				78.54	x	48.91	0.384	
17523-0197		PT LT 12, CON 9 EAST FLAMBOROUGH, AS IN CD504014, EXCEPT CD360662 & VM59922; S/T HL21428; S/T AB166558, EF20212, HL47489; S/T AN EASEMENT IN GROSS OVER PARTS 1, 2 AND 3 ON 62R17266 AS IN WE340746; FLAMBOROUGH. CITY OF HAMILTON. SUBJECT TO AN EASEMENT IN GROSS OVER PTS 1 & 2, 62R20130 AS IN WE1096097				150	x	100	1.492	

EB-2019-159  
Exhibit  
Tab 1  
Schedule  
Page 8 of 8

## PIPELINE EASEMENT

(hereinafter called the "Easement")

Between

(hereinafter called the "Transferor")

and

**ENBRIDGE GAS INC.**

(hereinafter called the "Transferee")

This is an Easement in Gross.

WHEREAS the Transferor is the owner in fee simple of those lands and premises more particularly described as:

**PIN:**

**Legal Description:**

(hereinafter called the "Transferor's Lands").

The Transferor does hereby GRANT, CONVEY, TRANSFER AND CONFIRM unto the Transferee, its successors and assigns, to be used and enjoyed as appurtenant to all or any part of the lands, the right, liberty, privilege and easement on, over, in, under and/or through a strip of the Transferor's Lands more particularly described as:

**BEING THE PIN/PART OF THE PIN:**

**Legal Description:**

(hereinafter called the "Lands") to survey, lay, construct, maintain, brush, clear trees and vegetation, inspect, patrol, alter, remove, replace, reconstruct, repair, move, keep, use and/or operate one pipeline for the transmission of Pipeline quality natural gas as defined in The Ontario Energy Board Act S.O. 1998 (hereinafter called the "Pipeline") including therewith all such buried attachments, equipment and appliances for cathodic protection which the Transferee may deem necessary or convenient thereto, together with the right of ingress and egress at any and all times over and upon the Lands for its servants, agents, employees, those engaged in its business, contractors and subcontractors on foot and/or with vehicles, supplies, machinery and equipment for all purposes necessary or incidental to the exercise and enjoyment of the rights, liberty, privileges and easement hereby granted. The Parties hereto mutually covenant and agree each with the other as follows:

1. In Consideration of the sum of One -----00/100 Dollars (\$1.00) (hereinafter called the "Consideration"), which sum is payment in full for the rights and interest hereby granted and for the rights and interest, if any, acquired by the Transferee by expropriation, including in either or both cases payment in full for all such matters as injurious affection to remaining lands and the effect, if any, of registration on title of this document and where applicable, of the expropriation documents, subject to Clause 12 hereof to be paid by the Transferee to the Transferor within 90 days from the date of these presents or prior to the exercise by the Transferee of any of its rights hereunder other than the right to survey (whichever may be the earlier date), the rights, privileges and easement hereby granted shall continue in perpetuity or until the Transferee, with the express written consent of the Transferor, shall execute and deliver a surrender thereof. Prior to such surrender, the Transferee shall remove all debris as may have resulted from the Transferee's use of the Lands from the Lands and in all respects restore the Lands to its previous productivity and fertility so far as is reasonably possible, save and except for items in respect of which compensation is due under Clause 2, hereof. As part of the Transferee's obligation to restore the Lands upon surrender of its easement, the Transferee agrees at the option of the Transferor to remove the Pipeline from the Lands. The Transferee and the Transferor shall surrender the Easement and the Transferee shall remove the Pipeline at the Transferor's option where the Pipeline has been abandoned. The Pipeline shall be deemed to be abandoned where: (a) corrosion protection is no longer applied to the Pipeline, or, (b) the Pipeline becomes unfit for service in accordance with Ontario standards. The Transferee shall, within 60 days of either of these events occurring, provide the Transferor with notice of the event. Upon removal of the Pipeline and restoration of the Lands as required by this agreement, the Transferor shall release the Transferee from further obligations in respect of restoration.
2. The Transferee shall make to the Transferor (or the person or persons entitled thereto) due compensation for any damages to the Lands resulting from the exercise of any of the rights herein granted, and if the compensation is not agreed upon by the Transferee and the Transferor, it shall be determined by arbitration in the manner prescribed by the Expropriations Act, R.S.O. 1990, Chapter E-26 or any Act passed in amendment thereof or substitution therefore. Any gates, fences

and tile drains curbs, gutters, asphalt paving, lockstone, patio tiles interfered with by the Transferee shall be restored by the Transferee at its expense as closely as reasonably possible to the condition and function in which they existed immediately prior to such interference by the Transferee and in the case of tile drains, such restoration shall be performed in accordance with good drainage practice and applicable government regulations.

3. The Pipeline (including attachments, equipment and appliances for cathodic protection but excluding valves, take-offs and fencing installed under Clause 9 hereof) shall be laid to such a depth that upon completion of installation it will not obstruct the natural surface run-off from the Lands nor ordinary cultivation of the Lands nor any tile drainage system existing in the Lands at the time of installation of the Pipeline nor any planned tile drainage system to be laid in the Lands in accordance with standard drainage practice, if the Transferee is given at least thirty (30) days notice of such planned system prior to the installation of the Pipeline. The Transferee agrees to make reasonable efforts to accommodate the planning and installation of future tile drainage systems following installation of the Pipeline so as not to obstruct or interfere with such tile installation. In the event there is a change in the use of all, or a portion of the Transferor Lands adjacent to the Lands which results in the pipeline no longer being in compliance with the pipeline design class location requirements, then the Transferee shall be responsible for any costs associated with any changes to the Pipeline required to ensure compliance with the class location requirements.
4. As soon as reasonably possible after the construction of the Pipeline, the Transferee shall level the Lands and unless otherwise agreed to by the Transferor, shall remove all debris as may have resulted from the Transferee's use of the Lands therefrom and in all respects restore the Lands to its previous productivity and fertility so far as is reasonably possible, save and except for items in respect of which compensation is due under Clause 2 hereof.
5. It is further agreed that the Transferee shall assume all liability and obligations for any and all loss, damage or injury, (including death) to persons or property that would not have happened but for this Easement or anything done or maintained by the Transferee hereunder or intended so to be and the Transferee shall at all times indemnify and save harmless the Transferor from and against all such loss, damage or injury and all actions, suits, proceedings, costs, charges, damages, expenses, claims or demands arising therefrom or connected therewith provided that the Transferee shall not be liable under the clause to the extent to which such loss, damage or injury is caused or contributed to by the gross negligence or wilful misconduct of the Transferor.
6. In the event that the Transferee fails to comply with any of the requirements set out in Clauses 2, 3, or 4 hereof within a reasonable time of the receipt of notice in writing from the Transferor setting forth the failure complained of, the Transferee shall compensate the Transferor (or the person or persons entitled thereto) for any damage, if any, necessarily resulting from such failure and the reasonable costs if any, incurred in the recovery of those damages.
7. Except in case of emergency, the Transferee shall not enter upon any of the Transferor's Lands, other than the Lands, without the consent of the Transferor. In case of emergency the right of entry upon the Transferor's Lands for ingress and egress to and from the Lands is hereby granted. The determination of what circumstances constitute an emergency, for purposes of this paragraph is within the absolute discretion of the Transferee, but is a situation in which the Transferee has a need to access the Pipeline in the public interest without notice to the Transferor, subject to the provisions of Clause 2 herein. The Transferee will, within 72 hours of entry upon such lands, advise the Transferor of the said emergency circumstances and thereafter provide a written report to Transferor with respect to the resolution of the emergency situation. The Transferee shall restore the lands of the Transferor at its expense as closely as reasonably practicable to the condition in which they existed immediately prior to such interference by the Transferee and in the case of tile drains, such restoration shall be performed in accordance with good drainage practice.
8. The Transferor shall have the right to fully use and enjoy the Lands except for planting trees over the lesser of the Lands or a six (6) meter strip centered over the Pipeline, and except as may be necessary for any of the purposes hereby granted to the Transferee, provided that the Transferor shall not excavate, drill, install, erect or permit to be excavated, drilled, installed or erected in, on, over or through the Lands any pit, well, foundation, building, mobile homes or other structure or installation and the Transferor shall not deposit or store any flammable material, solid or liquid spoil, refuse, waste or effluent on the Lands. Notwithstanding the foregoing the Transferee upon request shall consent to the Transferor erecting or repairing fences, hedges, pavement, lockstone constructing or repairing tile drains and domestic sewer pipes, water pipes, and utility pipes and constructing or repairing lanes, roads, driveways, pathways, and walks across, on and in the Lands or any portion or portions thereof, provided that before commencing any of the work referred to in

this sentence the Transferor shall (a) give the Transferee at least (30) clear days notice in writing describing the work desired so as to enable the Transferee to evaluate and comment on the work proposed and to have a representative inspect the site and/or be present at any time or times during the performance of the work, (b) shall follow the instructions of such representative as to the performance of such work without damage to the Pipeline, (c) shall exercise a high degree of care in carrying out any such work and, (d) shall perform any such work in such a manner as not to endanger or damage the Pipeline as may be required by the Transferee.

9. The rights, privileges and easement herein granted shall include the right to install, keep, use, operate, service, maintain, repair, remove and/or replace in, on and above the Lands any valves and/or take-offs subject to additional agreements and to fence in such valves and/or take-offs and to keep same fenced in, but for this right the Transferee shall pay to the Transferor (or the person or persons entitled thereto) such additional compensation as may be agreed upon and in default of agreement as may be settled by arbitration under the provisions of The Ontario Energy Board Act, S.O. 1998, or any Act passed in amendment thereof or substitution therefore. The Transferee shall keep down weeds on any lands removed from cultivation by reason of locating any valves and/or take-offs in the Lands.
10. Notwithstanding any rule of law or equity and even though the Pipeline and its appurtenances may become annexed or affixed to the realty, title thereto shall nevertheless remain in the Transferee.
11. Neither this Agreement nor anything herein contained nor anything done hereunder shall affect or prejudice the Transferee's rights to acquire the Lands or any other portion or portions of the Transferor's lands under the provisions of The Ontario Energy Board Act, S.O. 1998, or any other laws, which rights the Transferee may exercise at its discretion in the event of the Transferor being unable or unwilling for any reason to perform this Agreement or give to the Transferee a clear and unencumbered title to the easement herein granted.
12. The Transferor covenants that he has the right to convey this Easement notwithstanding any act on his part, that he will execute such further assurances of this Easement as may be requisite and which the Transferee may at its expense prepare and that the Transferee, performing and observing the covenants and conditions on its part to be performed, shall have quiet possession and enjoyment of the rights, privileges and easement hereby granted. If it shall appear that at the date hereof the Transferor is not the sole owner of the Lands, this Easement shall nevertheless bind the Transferor to the full extent of his interest therein and shall also extend to any after-acquired interest, but all moneys payable hereunder shall be paid to the Transferor only in the proportion that his interest in the Lands bears to the entire interest therein.
13. In the event that the Transferee fails to pay the Consideration as hereinbefore provided, the Transferor shall have the right to declare this Easement cancelled after the expiration of 15 days from personal service upon the Manager, Land Services of the Transferee at its Executive Head Office in Chatham, Ontario, (or at such other point in Ontario as the Transferee may from time to time specify by notice in writing to the Transferor) of notice in writing of such default, unless during such 15 day period the Transferee shall pay the Consideration; upon failing to pay as aforesaid, the Transferee shall forthwith after the expiration of 15 days from the service of such notice execute and deliver to the Transferor at the expense of the Transferee, a valid and registrable release and discharge of this Easement.
14. All payments under these presents may be made either in cash or by cheque of the Transferee and may be made to the Transferor (or person or persons entitled thereto) either personally or by mail. All notices and mail sent pursuant to these presents shall be addressed to:

the Transferor at:

and to the Transferee at: ENBRIDGE GAS INC.  
P.O. Box 2001  
50 Keil Drive North  
Chatham, Ontario N7M 5M1  
Attention: Manager, Land Services

or to such other address in either case as the Transferor or the Transferee respectively may from time to time appoint in writing.

15. The rights, privileges and easement hereby granted are and shall be of the same force and effect as a covenant running with the Transferor's Land and this Easement, including all the covenants

and conditions herein contained, shall extend to, be binding upon and inure to the benefit of the heirs, executors, administrators, successors and assigns of the Parties hereto respectively; and wherever the singular or masculine is used it shall, where necessary, be construed as if the plural, or feminine or neuter had been used, as the case may be.

16. (a) The Transferee represents that it is registered for the purposes of the Harmonized Goods and Services Tax (hereinafter called "HST") in accordance with the applicable provisions in that regard and pursuant to the Excise Tax Act, (R.S.C., 1985, c. E-15), (hereinafter called "Excise Tax Act"), as amended.

(b) The Transferee covenants to deliver a Statutory Declaration, Undertaking and Indemnity confirming its HST registration number, which shall be conclusive evidence of such HST registration, and shall preclude the Transferor from collection of HST from the Transferee.

(c) The Transferee shall undertake to self-assess the HST payable in respect of this transaction pursuant to subparagraphs 221(2) and 228(4) of the Excise Tax Act, and to remit and file a return in respect of HST owing as required under the said Act for the reporting period in which the HST in this transaction became payable.

(d) The Transferee shall indemnify and save harmless the Transferor from and against any and all claims, liabilities, penalties, interest, costs and other legal expenses incurred, directly or indirectly, in connection with the assessment of HST payable in respect of the transaction contemplated by this Easement. The Transferee's obligations under this Clause shall survive this Easement.

17. The Transferor hereby acknowledges that this Easement will be registered electronically.

Dated this \_\_\_\_ day of \_\_\_\_\_ 20\_\_.

\_\_\_\_\_  
Signature (Transferor)

\_\_\_\_\_  
Print Name(s) (and position held if applicable)  
Choose an item.

\_\_\_\_\_  
Address (Transferor)

**ENBRIDGE GAS INC.**

\_\_\_\_\_  
Signature (Transferee)

\_\_\_\_\_  
Name & Title (ENBRIDGE GAS INC.)

\_\_\_\_\_  
Telephone Number (ENBRIDGE GAS INC.)

**Additional Information: (if applicable):**

Property Address:

HST Registration Number:

[Municipality of Chatham-Kent ]

Province of Ontario

DECLARATION REQUIRED UNDER  
SECTION 50 (3) OF THE PLANNING  
ACT, R.S.O. 1990, as amended

[I \_\_\_\_\_, of the Municipality of Chatham-Kent, in the Province of Ontario; ]

DO SOLEMNLY DECLARE THAT:

1. I am a Project Manager, Lands Department of ENBRIDGE GAS INC., the Transferee in the attached Grant of Easement and as such have knowledge of the matters herein deposited to.
2. The use of or right in the land described in the said Grant of Easement being **Part of the PIN:** [ \_\_\_\_\_ ]  
**Legal Description:**

acquired by ENBRIDGE GAS INC. for the purpose of a hydrocarbon line within the meaning of Part VI of the Ontario Energy Board Act, 1998.

AND I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath, and by virtue of The Canada Evidence Act.

DECLARED before me at the \_\_\_\_\_ )  
\_\_\_\_\_ )  
\_\_\_\_\_ )  
in the Province of Ontario )  
\_\_\_\_\_ )  
this \_\_\_\_ day of \_\_\_\_\_ 20\_\_ )

\_\_\_\_\_

\_\_\_\_\_  
A Commissioner, etc. ]

## TEMPORARY LAND USE AGREEMENT

(Hereinafter called the "Agreement")

Between

(hereinafter called the "Owner")

and

**ENBRIDGE GAS INC.**

(hereinafter called the "Company")

In consideration of the sum of 0.00.....(\$0.00) payable by the Company to the Owner within thirty (30) days of signing of this Agreement in accordance with the compensation labelled as **Appendix "C"** hereto.

the Owner of **PIN:**

### Legal Description:

hereto hereby grants to Company, its servants, agents, employees, contractors and sub-contractors and those engaged in its and their business, the right on foot and/or with vehicles, supplies, machinery and equipment at any time and from time to time during the term of this Agreement to enter upon, use and occupy a parcel of land (hereinafter called the "Lands") more particularly described on the Sketch attached hereto labelled as **Appendix "B"** and forming part of this Agreement, the Lands being immediately adjacent to and abutting the [Easement] for any purpose incidental to, or that the Company may require in conjunction with, the construction by or on behalf of the Company of a proposed gas pipeline and appurtenances on the Lands including, without limiting the generality of the foregoing, the right to make temporary openings in any fence (if applicable) along or across the Lands and to remove any other object therein or thereon interfering with the free and full enjoyment of the right hereby granted and further including the right of surveying and placing, storing, levelling and removing earth, dirt, fill, stone, debris of all kinds, pipe, supplies, equipment, vehicles and machinery and of movement of vehicles, machinery and equipment of all kinds.

1. This Agreement is granted upon the following understandings:

- a) The rights hereby granted terminate on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.
- b) The Company shall make to the person entitled thereto due compensation for any damages resulting from the exercise of the right hereby granted and if the compensation is not agreed upon it shall be determined in the manner prescribed by Section 100 of The Ontario Energy Board Act, R.S.O. 1998 S.O. 1998, c.15 Schedule B, as amended or any Act passed in amendment thereof or substitution there for;
- c) As soon as reasonably possible after the construction, the Company at its own expense will level the Lands, remove all debris therefrom and in all respects, restore the Lands to their former state so far as is reasonably possible, save and except for items in respect of which compensation is due under paragraph (b) and the Company will also restore any gates and fences interfered with around, (*if applicable*) the Lands as closely and as reasonably possible to the condition in which they existed immediately prior to such interference by the Company.
- d) It is further agreed that the Company shall assume all liability and obligations for any and all loss, damage or injury, (including death) to persons or property that would not have happened but for this Agreement or anything done or maintained by the Company hereunder or intended so to be and the Company shall at all times indemnify and save harmless the Owner from and against all such loss, damage or injury and all actions, suits, proceedings, costs, charges, damages, expenses, claims or demands arising therefrom or connected therewith provided that the Company shall not be liable under the Clause to the extent to which such loss, damage or injury is caused or contributed to by the gross negligence or wilful misconduct of the Owner.

The Company and the Owner agree to perform the covenants on its part herein contained.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

---

Signature (Owner)

---

Print Name(s) (and position held if applicable)

I am/I am not a spouse.

---

---

Address (Owner)

**ENBRIDGE GAS INC.**

---

Signature (Company)

---

Name & Title (Enbridge Gas Inc.)

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[Click here to enter text.](#)

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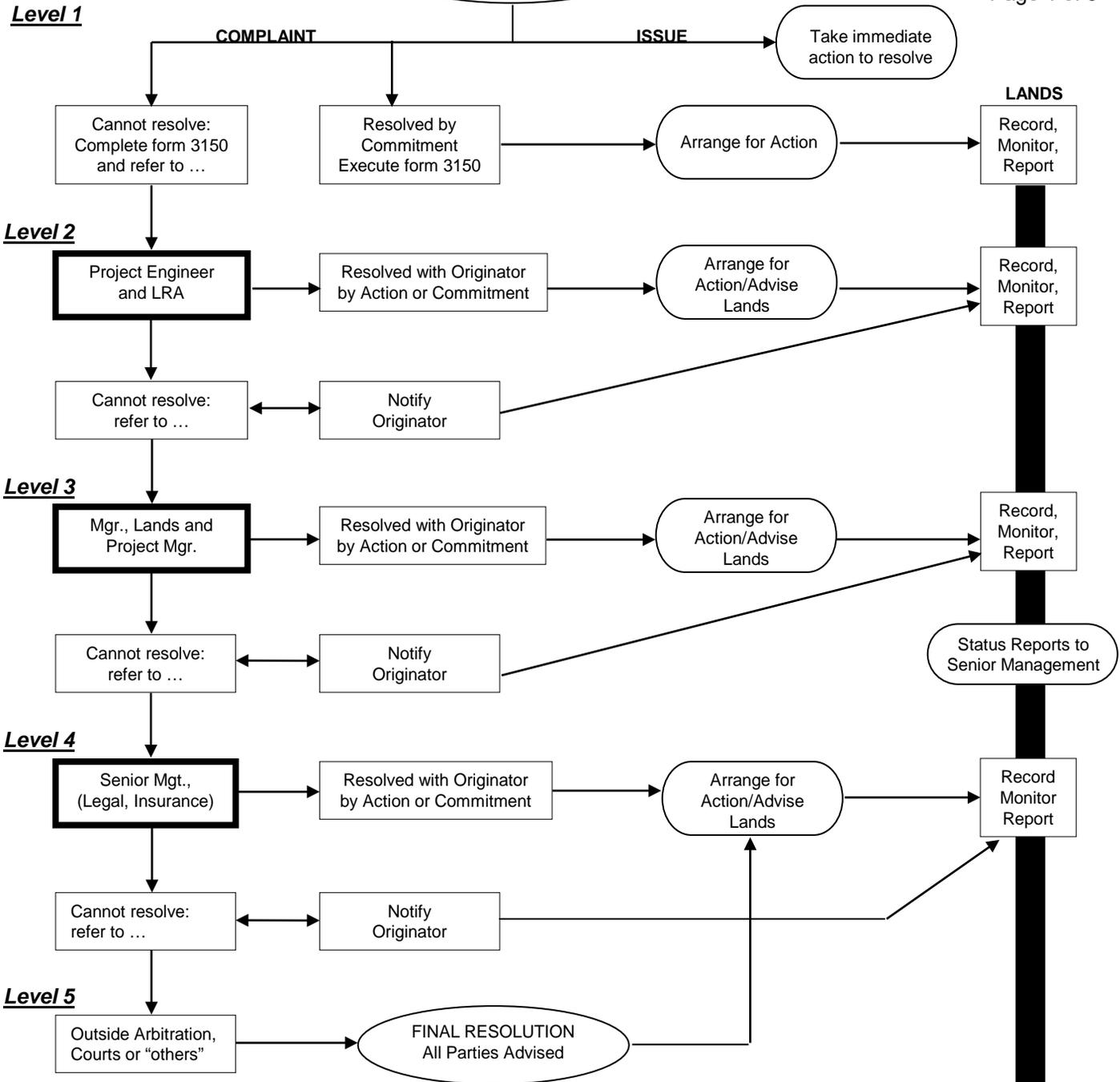
Telephone Number (Enbridge Gas Inc.)

**Additional Information: (if applicable):**

Property Address

HST Registration Number: |

**Process Chart: Landowner Complaint Resolution System**



**Notes:**

1. "Originator" of complaint or issue may be landowner or company representative.
2. Parties indicated in heavy outlined boxes shall assume responsibility for actions subsequently required in the resolution process. Parties identified in brackets may only be required for resolution or specific technical concerns.
3. "L.R.A." refers to Landowner Relations Agent.
4. "Outside Arbitration" includes the Board of Negotiation, O.M.B. and O.E.B. "Others" refers to other regulatory bodies and tribunals.

**FINAL REPORTS TO O.E.B.**

## **LANDOWNER COMPLAINT RESOLUTION SYSTEM EXPLANATION OF PROCESS CHART**

### **Key Definitions**

**Originator** – The originator of a complaint or issue is the landowner or Enbridge Gas personnel who initiates a complaint or issue by making it known to the Landowner Relations Agent or a company inspector.

**Landowner Relations Agent (LRA)** – A person assigned on a full time or part time basis to record, monitor, and ensure follow-up on any complaint or issue received by Enbridge Gas related to construction, to address questions and concerns of the landowners, and to act as a liaison between landowners and the contractor and engineering personnel.

**Issue** – A concern of a landowner which can be resolved within three ( 3 ) working days. Immediate action is taken to resolve such matters.

**Complaint** – A concern of a landowner which cannot be resolved within three ( 3 ) working days.

**Commitment** – If an issue or complaint is resolved at any level of the Complaint Resolution system through the efforts and liaison activities of the Landowner Relations Agent or other personnel, the resolution is recorded to ensure proper future follow-up.

**Outside Arbitration** – includes the Board of Negotiation, O.M.B., and O.E.B.

**Others** – refers to other regulatory bodies and tribunals

### **Levels of the Complaint Resolution System**

**Level 1:** The LRA or company inspector receives issues or complaints, and the following can happen:

- a) Immediate action could be arranged by the LRA or inspector to resolve the issue or complaint; or
- b) A complaint can be resolved by a commitment in which case the LRA is responsible for arranging for the committed action and having the commitment recorded in the Complaint Resolution system; or
- c) If a complaint cannot be resolved through the efforts of the LRA or inspector, the applicable form ( Form 3150 ) is completed and then recorded, and the complaint is referred to **Level 2**.

**Level 2:** The LRA and the Construction Supervisor work together to develop a resolution for the complaint, and the following can happen:

- a) the complaint may be resolved with the originator by action or commitment and the action or commitment is recorded in the Complaint Resolution System; or
- b) if the complaint cannot be resolved, the originator is notified, the non-resolution is recorded, and the complaint is referred to **Level 3**.

**Level 3:** The Manager, Lands and the Project Manager work together to develop a resolution for the complaint, and the following can happen:

- a) complaint may be resolved with the originator by action or commitment and the action or commitment is recorded in the Complaint Resolution System; or
- b) if the complaint cannot be resolved, the originator is notified, the non-resolution is recorded, and the complaint is referred to **Level 4**;

When complaints reach this level, status reports are generated through the Complaint Resolution System and are forwarded to Senior Management.

**Level 4:** Senior Management (with possible input from the Legal and Risk and Claims Departments) attempts to develop a resolution to the complaint, and the following can happen:

- a) the complaint may be resolved with the originator by action or commitment and the action or commitment is recorded in the Complaint Resolution System; or
- b) if the complaint cannot be resolved, the originator is notified, the non-resolution is recorded, and the complaint is referred to **Level 5**;

**Level 5:** Involves the resolution of a complaint by outside arbitration or others, and the following will happen:

A final resolution will occur, all parties will be advised, and any action required will be arranged by the LRA or other Lands Department personnel.

**Note:** the Complaint Resolution System is used to generate final reports to the Ontario Energy Board

1 **INDIGENOUS<sup>1</sup> CONSULTATION**

2 The purpose of this section of evidence is to provide an overview of consultations with  
3 Indigenous groups potentially affected by the Project.

4  
5 This Tab of evidence is organized as follows:

- 6 1. Aboriginal Engagement Program Objectives
- 7 2. Overview of Aboriginal Engagement Program Activities
- 8 3. Ongoing Aboriginal Engagement Program Activities

9  
10 Enbridge Gas is committed to creating processes that support meaningful engagement  
11 with potentially affected Indigenous groups (First Nations and Métis). Enbridge Gas  
12 works to build an understanding of project-related interests, to ensure regulatory  
13 requirements are met, to mitigate or avoid project-related impacts on Aboriginal  
14 interests including rights and to provide mutually beneficial opportunities where  
15 possible.

16  
17 Pursuant to the OEB's *Environmental Guidelines for the Location, Construction and*  
18 *Operation of Hydrocarbon Pipelines and Facilities in Ontario, 7<sup>th</sup> Edition, 2016* (the  
19 "Environmental Guidelines"), Enbridge Gas provided the Ontario Ministry of Energy,  
20 Northern Development and Mines ("MENDM") with a project description for the Project

---

<sup>1</sup> Enbridge Gas has used the terms "Aboriginal" and "Indigenous" interchangeably in its application. "Indigenous" has the meaning assigned by the definition "aboriginal peoples of Canada" in subsection 35(2) of the Constitution Act, 1982.

1 on November 29, 2018. This Project description is set out at Exhibit A, Tab 12,  
2 Attachment 1.

3  
4 On February 8, 2019, Enbridge Gas received a letter from the MENDM indicating that  
5 the MENDM had delegated the procedural aspects of consultation to Enbridge Gas for  
6 the Project (the “Delegation Letter”). The Delegation Letter identified three Indigenous  
7 communities to be consulted with. A copy of the Delegation Letter is provided at  
8 Exhibit A, Tab 12, Attachment 2.

9  
10 Enbridge Gas provided this Tab of evidence along with a summary of the Indigenous  
11 Consultation Report at Exhibit A, Tab 12, Attachment 5, and the Indigenous  
12 Consultation Report: Log and Correspondence (and associated attachments) at  
13 Exhibit A, Tab 12, Attachment 6, to the MENDM on November 1, 2019 and requested  
14 that the MENDM determine if the procedural aspects of the Duty to Consult for the  
15 Project have been sufficient. Collectively, the aforementioned Tab of evidence and  
16 Attachments form the Indigenous Consultation Report for the Project. Enbridge Gas will  
17 update this Exhibit (specifically Exhibit A, Tab 12, Attachment 3) when a sufficiency  
18 letter is received from the MENDM. Information gathered during the course of Enbridge  
19 Gas’s engagement with Indigenous groups was incorporated into the Stage 1  
20 Archaeological Assessment and Environmental Report set out in Exhibit A, Tab 10,  
21 Attachment 1, and will be incorporated into the Stage 2 Archaeological Assessment  
22 when completed. This work was completed under the auspices of the Environmental

1 Guidelines which include duty to consult requirements for hydrocarbon facility  
2 proponents.

3

#### 4 **1. Aboriginal Engagement Program Objectives**

5 The design of the Aboriginal engagement program was based on adherence to the  
6 OEB's Environmental Guidelines and Enbridge Gas's Indigenous Peoples Policy and  
7 principles as follows:

- 8 • Enbridge Inc. has instituted a company-wide Indigenous Peoples Policy ("Policy")  
9 (set out at Exhibit A, Tab 12, Attachment 4). The Policy lays out key principles  
10 for establishing relationships with Indigenous groups which includes, respect for  
11 traditional ways and land, heritage sites, the environment and traditional  
12 knowledge.
- 13 • Enbridge Gas has established meaningful relationships, has provided timely  
14 exchanges of information, understands and addresses Indigenous Project-  
15 specific concerns, and ensures ongoing dialogue about its projects, their  
16 potential implications and benefits.
- 17 • Enbridge Gas aligns its interests with those of Indigenous communities through  
18 meaningful, direct Indigenous economic activity in projects corresponding to  
19 community capacity and project needs, where possible.
- 20 • The Indigenous engagement program for the Project recognizes the rights of  
21 Indigenous groups and assists Enbridge Gas in engaging in meaningful dialogue  
22 with potentially affected Indigenous groups about the Project. It also assists

1 Enbridge Gas in meeting the procedural aspects of consultation that may be  
2 required by the Crown and the Environmental Guidelines.

3  
4 **2. Overview of Aboriginal Engagement Program Activities**

5 Enbridge Gas conducts its Indigenous consultation generally through phone calls, in-  
6 person meetings, mail-outs, open houses and email communications. During these  
7 engagement activities, Enbridge Gas representatives provide an overview of the  
8 Project, respond to questions and concerns, and address any interests or concerns  
9 expressed by Indigenous communities to appropriately mitigate any Project-related  
10 impacts. To accurately document Indigenous engagement activities and ensure follow-  
11 up, applicable supporting documents are tracked using a database.

12  
13 **3. Ongoing Aboriginal Engagement Program Activities**

14 Enbridge Gas will continue to actively engage all identified Indigenous groups in  
15 meaningful ongoing dialogue concerning the Project and will endeavor to meet with  
16 each Indigenous group, provided they are willing, to exchange information regarding the  
17 Project and to respond to inquiries in a timely manner. Enbridge Gas will hear and  
18 address concerns as is feasible and will seek information on the exercise of, and  
19 potential impacts to, Aboriginal and Treaty rights, traditional use in the Project area and  
20 how any potential Project-related impacts can be mitigated.

21

- 1 The information presented in the aforementioned evidence reflects Enbridge Gas's
- 2 Indigenous engagement activities for the Project up to and including October 10, 2019.
- 3 Enbridge Gas will continue to engage during the regulatory process and throughout the
- 4 life of the Project.



November 29, 2018

Ms. Shannon McCabe  
Senior Policy Advisor  
Indigenous Energy Policy  
Ministry of Energy  
77 Grenville Street, 6<sup>th</sup> Floor  
Toronto, ON M7A 2C1

Dear Ms. McCabe:

**Re: NPS 48 Kirkwall-Hamilton Pipeline Project**

Enclosed please find Union's Report to the Ministry of Energy to determine the Indigenous Consultation required for the above noted project. I have also enclosed a copy of the location map for your reference.

In the event that you have any questions on the above or would like to discuss in more detail, please do not hesitate to contact me.

Yours truly,

*Ken McCorkle*

Ken McCorkle  
Manager, Indigenous Affairs  
Union Gas Limited  
50 Keil Drive North  
Chatham, ON N7M 5M1  
Phone: 519-436-4600 ext. 5002243  
Email: kmccorkle@uniongas.com

## **Union Gas Limited – Proposed NPS 48 Kirkwall – Hamilton Pipeline Project Summary for the Ministry of Energy, Northern Development and Mines**

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### **1. Introduction**

---

This Summary Report has been prepared to provide the Ministry of Energy, Northern Development and Mines (“ENDM”) with an overview of the Kirkwall – Hamilton Pipeline Project (“Project”), to support the preparation of a contact list of indigenous communities that may have an interest in the Project.

#### **1.1 Project Overview**

To increase existing capacity and accommodate additional demand for natural gas, Union Gas Limited (“Union Gas”) is proposing to construct a new NPS 48-inch diameter natural gas pipeline. The proposed pipeline is planned to be in service as early as Fall 2021 and will be located within the municipality of the City of Hamilton. The proposed pipeline will generally parallel three existing Union Gas pipelines between the existing Kirkwall valve site and the Hamilton gate station. The length of the pipeline will be determined by the final route chosen but will be approximately 10-14 km. The study area within which alternative routes will be developed and evaluated, and within which a preferred route will be identified is shown in Figure 1 (attached).

The following table provides the co-ordinates for the valve site and station.

<b>Proposed Locations</b>	<b>Latitude</b>	<b>Longitude</b>
Kirkwall Valve Site	43.351282	-80.118709
Hamilton Gate Station	43.381753	-80.004919

---

### **2. Regulatory Requirements and Approvals**

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Ontario Energy Board (“OEB”) review and approval is required before this Project can proceed. As part of that application, an Environmental Review (ER) will be conducted in accordance with the OEB *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario 7<sup>th</sup> Edition* (2016). The ER for this Project is anticipated to be completed and submitted to the OEB as early as summer 2019. Construction of the Project is planned to begin as early as spring/summer 2021 with an in-service date 6 months after construction start. Other permits and authorizations for the Project will be determined and may be necessary at the Federal, Provincial and Municipal levels.

---

### **3. Environmental Planning Process**

---

The environmental planning process for the Project will be initiated in the fall of 2018 by Union Gas, with support provided throughout the process by consultant archaeologists, cultural heritage specialists,

and other environmental specialists. The following provides a general overview of the environmental planning process for the Project:

- **Complete an Environmental Report (ER)**
  - Describe the proposed work necessary for the Project;
  - Complete a route evaluation study
  - Describe the procedures that will be followed during construction of the facilities;
  - Identify potential environmental impacts and recommend measures to minimize those impacts; and
  - Describe the consultation opportunities.
- **Complete all necessary studies and assessments**
  - An Archaeological Assessment will be conducted by a licensed archaeologist in accordance with the Ministry of Tourism, Culture and Sport (MTCS) guidelines to identify known or potential archaeological resources within the Project area and will develop an appropriate mitigation plan if required.
  - A heritage specialist will review the running line for potential cultural heritage landscapes and built heritage resources and will develop an appropriate mitigation plan if required.
  - A qualified biologist will review the running line for potential species at risk and determine if any species will be impacted by construction activities and will develop an appropriate mitigation plan if required.
- **Obtain all necessary environmental permits and approvals**
  - Union Gas will work with all relevant governing agencies (i.e. the Ministry of the Environment, Conservation and Parks (MECP), the Ministry of Natural Resources and Forestry (MNR), Grand River Conservation Authority (GRCA), Hamilton Conservation Authority (HCA), Conservation Halton (CH), Fisheries and Oceans Canada (DFO)) to obtain any permits and/or approvals should it be necessary.

---

#### 4. Consultation

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Consultation is an important part of the environmental planning process and may include discussions with the relevant federal and provincial agencies, the municipality, interested and potentially affected landowners, and interest groups, as well as First Nations and Metis Nations as identified by ENDM.

Union Gas will contact the municipality, MECP, MNR, DFO, GRCA, HCA and CH to discuss and review the project. Union Gas will also contact landowners along the proposed route.

---

#### 5. Project Activities

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The pipeline will be installed using Union Gas's standard construction practices which include grading the site, digging the trench, installing the welded pipeline in the trench, testing the pipeline, and restoring the area to its original condition. The crossing methods used for watercourse crossings along the selected route will be determined during detailed design and will be based on site specific conditions and the results of geotechnical investigations.

---

## **6. Summary and Conclusion**

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The purpose of this report is to provide ENDM with preliminary information regarding the Project and acquire a list of Indigenous communities that may be interested in providing feedback during the Project planning process. Data collection and field studies will be undertaken to determine the potential effects of the Project during the construction and operation phases. Mitigation measures to manage these potential effects will be identified and will include proposed monitoring and contingency plans which will be implemented to ensure effects are minimized.

Ministry of Energy, Northern  
Development and Mines

77 Grenville Street  
6<sup>th</sup> Floor  
Toronto ON M7A 2C1

Tel: (416) 314-2599

Ministère de l'Énergie,  
Développement du Nord et  
Mines

77 rue Grenville  
6<sup>e</sup> étage  
Toronto ON M7A 2C1

Tél: (416) 314-2599



**Indigenous Energy Policy**

VIA EMAIL

February 8, 2019

Ken McCorkle  
Manager, Indigenous Affairs  
Union Gas Limited  
50 Keil Drive North  
Chatham, ON  
N7M 5M1

**Re: NPS 48 Kirkwall Hamilton Pipeline Expansion Project**

Dear Ken McCorkle:

Thank you for your email dated November 29, 2019 notifying the Ministry of Energy, Northern Development and Mines of Union Gas Limited's proposal for the NPS 48 Kirkwall Hamilton Pipeline Project and requesting clarification on Duty to Consult requirements.

I understand that Union Gas Limited is proposing to construct a new NPS 48-inch diameter natural gas pipeline to service existing and potential customers in the municipality of the city of Hamilton. The project consists of approximately 10-14 km of a new NPS 48 inch diameter natural gas pipeline that will generally parallel three existing Union Gas pipelines between the existing Kirkwall valve site and the Hamilton gate station. The pipeline is planned to be in service by Fall 2021.

Proposed Locations	Latitude	Longitude
Start Kirkwall Valve Site	43.351282	-80.118709
End Point Hamilton Gate Station	43.381753	-80.004919

The Ministry has reviewed the information provided relative to its current understanding of the interests of First Nation and Métis communities in the area and has determined that it may have the potential to affect First Nation and Métis communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982.

As you are aware, the Government of Ontario (the "Crown") has a constitutional duty to consult and accommodate First Nation and Métis communities when Crown project approvals may lead to an appreciable adverse impact on established or asserted Aboriginal or treaty rights. While the legal duty to consult falls on the Crown, the Crown may delegate the day-to-day, procedural aspects of consultation to project proponents. The Ministry of the Energy is delegating the procedural aspects of consultation to Union Gas Limited through this letter.

Based on the Crown's preliminary assessment of First Nation and Métis community rights and project impacts, the following Aboriginal communities should be consulted on the basis that they have or may have constitutionally protected Aboriginal or treaty rights that may be adversely affected by the Project:

<b>Community</b>	<b>Mailing Address</b>
Mississaugas of the New Credit First Nation	2789 Mississauga Road R.R. #6 Hagersville, ON N0A 1H0
Six Nations of the Grand River *	Six Nations of the Grand River Elected Council PO Box 5000 Ohsweken, Ontario N0A 1M0  Haudenosaunee Confederacy Chiefs Council P.O Box 714 Ohsweken, ON N0A 1M0

**Note:**

\*Please note, proponents are required to consult with both, Six Nations Elected Council and Haudenosaunee Confederacy Chiefs Council (HCCC). Please copy Haudenosaunee Development Institute (HDI) on all correspondence to Haudenosaunee Confederacy Chiefs Council (HCCC).

This rights-based consultation list is based on information that is subject to change. First Nation and Métis communities may make new rights assertions at any time, and other developments (e.g. the discovery of Aboriginal archaeological sites) can occur that may require additional First Nation and/or Métis communities to be notified and/or consulted. If you become aware of potential rights impacts on communities that are not listed above at any stage of the consultation and approval process, kindly bring this to the attention of the Ministry with any supporting information regarding the claim. The

Ministry will then assess whether it is necessary to include the community on the rights-based consultation list above.

It is the Ministry's expectation that Union Gas Limited will communicate directly with the communities listed above, and that Union Gas Limited will:

- Notify the communities that Union Gas Limited has been delegated the procedural aspects of consultation by the Ministry of Energy, Northern Development and Mines on behalf of Ontario.
- Notify the communities that they may contact the Crown directly should they have any questions or concerns.
- Provide the communities with the following contact information should they wish to communicate directly with the Ministry:  
Raina Crasto  
Policy Advisor  
Indigenous Energy Policy  
Ministry of Energy, Northern Development and Mines  
416-326-4571  
[Raina.crasto@ontario.ca](mailto:Raina.crasto@ontario.ca)
- Please copy the Ministry contact when communicating the above information.

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process. Union Gas Limited's responsibilities for procedural aspects of consultation include:

- Providing the First Nation and Métis communities with timely notice of the project for the purposes of considering possible impacts on their Aboriginal and/or treaty rights;
- In that notice, clearly stating that Union Gas Limited has been delegated the procedural aspects of consultation by the Ministry of Energy, Northern Development and Mines on behalf of Ontario for the project.
- Providing First Nation and Métis communities with information about the project including anticipated impacts, and information on project timelines;
- Following up with First Nation and Métis communities to ensure they have received project information and that they are aware of the opportunity to express comments and concerns about the project;
- Explaining the regulatory and approval processes that apply to the project;
- Gathering information about how the project may adversely impact the relevant Aboriginal and/or treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
- Considering the comments and concerns raised by First Nation and Métis communities and providing responses;

- Where appropriate, discussing accommodation, including mitigation or other measures to address potential adverse impacts on Aboriginal and/or treaty rights;
- Where appropriate, developing and discussing with the Crown appropriate accommodation measures;
- Taking reasonable steps to foster positive relationships with the First Nation and Métis communities;
- Bearing the reasonable costs associated with these procedural aspects of consultation; and
- Maintaining records of activities in relation to carrying out the delegated procedural aspects of consultation and providing information to the Ministry.

If you have any questions about this letter or require any additional information please contact Raina Crasto at 416-326-4571 or [Raina.crasto@ontario.ca](mailto:Raina.crasto@ontario.ca)

Sincerely,



Shannon McCabe  
A/Manager  
Indigenous Energy Policy

C: Ontario Pipeline Coordinating Committee (OPCC)

Ministry of Energy, Northern  
Development and Mines

Ministère de l'Énergie, du  
Développement du Nord et des  
Mines

77 Grenville Street  
6<sup>th</sup> Floor  
Toronto ON M7A 2C1

77, rue Grenville  
6<sup>e</sup> étage  
Toronto ON M7A 2C1

Tel: (416) 325-6544

Tél: (416) 325-6544



January 30, 2020

VIA EMAIL

Lauren Whitwham  
Analyst, Indigenous, Municipal Affairs and Stakeholder Relation  
Enbridge Gas Inc.  
109 Commissioners Road West  
London, Ontario, N6A 4P1

**Re: Consultation Sufficiency Opinion for the Dawn Parkway Expansion Project**

Dear Lauren Whitwham,

The Ontario Ministry of Energy, Northern Development and Mines (ENDM) has completed its review of Enbridge Gas' Indigenous consultation report for the Dawn Parkway Expansion Project. This letter is to notify you that it is our understanding that there are no outstanding concerns from Indigenous communities that are known to ENDM at this time. As a result, the ministry has no concerns with the sufficiency of the consultation to date. ENDM is of the opinion that the procedural aspects of consultation undertaken by Enbridge Gas to date for the purposes of the Ontario Energy Board's Leave to Construct approval process for the Dawn Parkway Expansion Project is satisfactory.

If you have any questions about this letter or require any additional information, please contact Jason McCullough at (416) 526-2963 or [Jason.McCullough@ontario.ca](mailto:Jason.McCullough@ontario.ca).

It is expected that Enbridge Gas will continue to engage with communities throughout the life of the Dawn Parkway Expansion Project, and that Enbridge Gas will notify ENDM should any additional rights-based concerns or issues arise.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Delaquis", enclosed within a large, loopy scribble.

Dan Delaquis  
A/Manager  
Indigenous Energy Policy

c: Ontario Energy Board  
Ontario Pipeline Coordinating Committee

# Enbridge Inc. Indigenous Peoples Policy

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# Enbridge Indigenous Peoples Policy

Enbridge recognizes the diversity of Indigenous Peoples who live where we work and operate. We understand that the history of Indigenous Peoples in both Canada and the United States has had destructive impacts on the social and economic wellbeing of Indigenous Peoples. Enbridge recognizes the importance of reconciliation between Indigenous communities and broader society. Positive relationships with Indigenous Peoples, based on mutual respect and focused on achieving common goals, will create constructive outcomes for Indigenous communities and for Enbridge.

Enbridge commits to pursuing sustainable relationships with Indigenous Nations and groups in proximity to where Enbridge conducts business. To achieve this, Enbridge will govern itself by the following principles:

- We recognize the legal and constitutional rights possessed by Indigenous Peoples in Canada and in the U.S., and the importance of the relationship between Indigenous Peoples and their traditional lands and resources. We 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, and we commit to ensuring that our projects and operations are carried out in an environmentally responsible manner.
- We recognize the importance of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) within the context of existing Canadian and U.S. law and the commitments that governments in both countries have made to protecting the rights of Indigenous Peoples.

- We engage in forthright and sincere consultation with Indigenous Peoples about Enbridge's projects and operations through processes that seek to achieve early and meaningful engagement so their input can help define our projects that may occur on lands traditionally used by Indigenous Peoples.
- We commit to working with Indigenous Peoples to achieve benefits for them resulting from Enbridge's projects and operations, including opportunities in training and education, employment, procurement, business development, and community development.
- We foster understanding of the history and culture of Indigenous Peoples among Enbridge's employees and contractors, in order to create better relationships between Enbridge and Indigenous communities.

This commitment is a shared responsibility involving Enbridge and its affiliates, employees and contractors, and we will conduct business in a manner that reflects the above principles. Enbridge will provide ongoing leadership and resources to ensure the effective implementation of the above principles, including the development of implementation strategies and specific action plans.

Enbridge commits to periodically reviewing this policy to ensure it remains relevant and meets changing expectations.

**INDIGENOUS CONSULTATION REPORT: SUMMARY TABLES**

<p><b>Haudenosaunee Development Institute (“HDI”)          Monitoring Program Coordinator          519-445-4222</b></p>		
<p><b>Was project information provided to the community?</b></p>	<p><input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No</p>	<p>On February 11, 2019, an Enbridge representative notified HDI of the Project. The Project notification letter included a map and description of the Project. In response, on February 13, 2019, an HDI representative responded confirming receipt of the email and they provided the Enbridge representative with a new email address for future outreach.</p> <p>On February 12, 2019, an Enbridge representative sent an email to the HDI representative with a letter notifying them about the Project. The letter advised that Stantec would be undertaking the environmental study and provided HDI with the logistical information for the Information Session.</p> <p>On March 6, 2019, an Enbridge representative sent an email to the HDI representative requesting a meeting to discuss the Project. On March 7, 2019 an HDI representative responded providing dates for a meeting.</p> <p>On March 14, 2019, an Enbridge representative sent an email to the HDI representative to confirm a meeting date of April 18, 2019 to discuss the Project.</p> <p>On April 18, 2019, a meeting was held between Enbridge and HDI to discuss the Project.</p> <p>The Enbridge representatives reviewed the presentation and Project map with HDI. The Enbridge representative explained the purpose of the Project:</p> <ul style="list-style-type: none"> <li>• To construct a new NPS 48inch diameter natural gas pipeline to accommodate additional demand for natural gas;</li> <li>• New construction will parallel three existing pipelines; and</li> <li>• The planned construction date is 2021.</li> </ul> <p>The Enbridge representatives explained Archaeology and Environmental surveys and the mitigation that was involved.</p>

		<p>On July 17, 2019, an Enbridge representative sent an email to the HDI representative to provide them with information on the Archaeology work on the Project. The Enbridge representative informed HDI that Stantec would be responsible for this work and advised that it might begin in the fall. The Enbridge representative advised that Stantec would contact them to participate in the Stage 2 environmental assessment work.</p> <p>On August 29, 2019, a representative from Stantec, an Enbridge consultant on the Project, emailed the HDI representative to advise them that Stantec would be completing a Stage 2 archaeological assessment and natural heritage study for the Project and invited the community to participate in the assessment.</p>						
<p><b>Was the community responsive/did you have direct contact with the community?</b></p>	<p><input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No</p>	<p>Enbridge and HDI corresponded by way of email with respect to the Project and an in-person meeting was held on April 18, 2019.</p>						
<p><b>Did the community members or representatives have any questions or concerns?</b></p>	<p><input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No</p>	<p>On April 18, 2019, Enbridge and HDI met in person to discuss the Project so Enbridge could address any questions from HDI.</p> <table border="1"> <thead> <tr> <th>HDI Question</th> <th>Enbridge Response</th> </tr> </thead> <tbody> <tr> <td>The HDI representatives asked about the new Enbridge corporate structure.</td> <td>The Enbridge representative explained the merger and reviewed the new structure.</td> </tr> <tr> <td>The HDI representatives asked about the lifespan of the pipe and the security of natural gas supply.</td> <td>The Enbridge representative explained that continual monitoring of the pipeline and ensuring all regulations are in place will allow for the pipeline to operate for decades. The Enbridge representative advised that there are no concerns with the security of natural gas supply at this time.</td> </tr> </tbody> </table>	HDI Question	Enbridge Response	The HDI representatives asked about the new Enbridge corporate structure.	The Enbridge representative explained the merger and reviewed the new structure.	The HDI representatives asked about the lifespan of the pipe and the security of natural gas supply.	The Enbridge representative explained that continual monitoring of the pipeline and ensuring all regulations are in place will allow for the pipeline to operate for decades. The Enbridge representative advised that there are no concerns with the security of natural gas supply at this time.
HDI Question	Enbridge Response							
The HDI representatives asked about the new Enbridge corporate structure.	The Enbridge representative explained the merger and reviewed the new structure.							
The HDI representatives asked about the lifespan of the pipe and the security of natural gas supply.	The Enbridge representative explained that continual monitoring of the pipeline and ensuring all regulations are in place will allow for the pipeline to operate for decades. The Enbridge representative advised that there are no concerns with the security of natural gas supply at this time.							

		<p>The HDI representative asked about species at risk, particularly salamanders and snapping turtles.</p>	<p>The Enbridge representatives discussed the mitigation process for species at risk, which can be found in the Environmental report.</p>
		<p>The HDI representative asked if the natural gas line could be converted to oil.</p>	<p>The Enbridge representative explained that there was no intention or plan for the line to be converted to oil as the intention is for the line to be used specifically for natural gas.</p>
		<p>The HDI representatives requested having monitors on site due to the environmental sensitives in the area.</p>	<p>The Enbridge representative advised that Stage 2 environmental assessments would be completed by Stantec and that they would be in touch to arrange for monitoring.</p>
<p><b>Does the community have any outstanding concerns?</b></p>	<p><input type="checkbox"/> Yes  <input checked="" type="checkbox"/> No</p>	<p>To date, HDI does not have any outstanding concerns.</p>	

<b>Mississauga of the Credit First Nation (“MCFN”)          Consultation Manager          905-768-4260</b>		
<b>Was project information provided to the community?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>On February 11, 2019, an Enbridge representative notified MCFN about the Project. The Project notification letter included a map and a description of the Project. On February 12, 2019, a representative from MCFN responded requesting to set up a meeting.</p> <p>On February 12, 2019, an Enbridge representative sent an email and Project notification letter to an MCFN representative . The letter advised that Stantec would be undertaking the environmental study for the Project and provided the logistical information for the Information Session.</p> <p>On February 25, 2019, an Enbridge representative emailed the MCFN consultation manager to set up a meeting time to discuss the Project. The Enbridge representative advised that he had requested a copy of the Stage One Environmental Assessment report from Stantec as per MCFN's request. The Enbridge representative advised the MCFN representative that he would provide them with the Report once it has been received. No response was received from MCFN.</p> <p>On May 8, 2019, an Enbridge representative emailed a representative from MCFN to request dates when they could meet to discuss the Project. The parties agreed to meet on June 11, 2019.</p> <p>On May 28, 2019, the Enbridge representative emailed the MCFN representative to provide them with a copy of the Stage One Archeological report. On May 29, 2019, the MCFN representative responded acknowledging receipt and advised they would be in contact with questions once they had completed their review. The MCFN representative requested to be advised of Stage 2 Environmental assessment work and reminded the Enbridge representative that they would require Field Liaison Representatives (monitors) to be present during the work.</p> <p>On June 11, 2019, a meeting was held between Enbridge and MCFN to discuss the Project.</p>

	<p>The Enbridge representatives reviewed the presentation and Project map with MCFN. The Enbridge representative explained the purpose of the Project:</p> <ul style="list-style-type: none"><li>• To construct a new NPS 48inch diameter natural gas pipeline to accommodate additional demand for natural gas;</li><li>• New construction will parallel three existing pipelines; and</li><li>• The planned construction date is 2021.</li></ul> <p>The Enbridge representatives explained Archaeology and Environmental surveys and the mitigation that was involved.</p> <p>On August 29, 2019, a representative from Stantec, an Enbridge consultant on the Project, emailed the MCFN representative to advise them that Stantec would be completing a Stage 2 archaeological assessment and natural heritage study for the Project and invited the community to participate in the assessment.</p> <p>On September 17, 2019, a MCFN representative sent an email and letter expressing concern over the consultation on the Project. The Enbridge representative sent an email back acknowledging the letter and advised that Enbridge would reach out to the consultation department to obtain further information and discuss.</p> <p>On September 18, 2019, An Enbridge representative called two MCFN representatives, leaving messages requesting a telephone call back to discuss the letter. On September 20, 2019, a MCFN representative called the Enbridge representative to discuss the letter dated September 16. They discussed the consultation process and worked through the timeline of the Project to ensure both parties were in agreement. The MCFN will forward a previous used monitor agreement to the Enbridge representative to be used for the Project. Both parties agreed to continue with the ongoing consultation on the project. The previously used agreement was forwarded on September 20, 2019 to the Enbridge representative.</p> <p>Also on September 20, 2019, a representative from MCFN called the Enbridge representative to discuss the letter dated September 16, 2019. The Enbridge representative advised that</p>
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		<p>he had spoken to a MCFN representative earlier in the day and they addressed the consultation process and the involvement of MCFN in the Project. The Enbridge representative advised that no environmental surveys would be completed without MCFN's knowledge and/or participation. The MCFN was satisfied with the discussion and agreed that contact with the MCFN should continue through the Archaeological Operations Supervisor.</p> <p>On September 24, 2019, an Enbridge representative sent an email and a copy of the updated Monitor agreement to the MCFN representatives for their review and signature. The MCFN representative returned the signed agreement on September 24, 2019. The Enbridge representative provided the completed signed document to the MCFN representative on October 1, 2019.</p> <p>On October 1, 2019, An Enbridge representative called and left a message for a MCFN representative to set up a meeting with Stantec, Enbridge and MCFN to discuss the Project. The Enbridge representative provided some dates for this meeting. The MCFN representative responded to the Enbridge representative in an email and both parties agreed to meet on October 11.</p> <p>On October 9, 2019, the Stantec representative emailed the representatives from Enbridge and MCFN to cancel the October 11, 2019 meeting due to other commitments. On October 10, 2019 the MCFN representative responded to all parties suggesting postponing the planned meeting until 2020.</p>				
<p><b>Was the community responsive/did you have direct contact with the community?</b></p>	<p><input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No</p>	<p>MCFN and Enbridge corresponded by way of email and an in person meeting was held on June 11, 2019.</p>				
<p><b>Did the community members or</b></p>	<p><input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No</p>	<p>On June 11, 2019, Enbridge and MCFN met in person to discuss the Project so Enbridge could address any questions from MCFN.</p> <table border="1"> <thead> <tr> <th>MCFN Question</th> <th>Enbridge Response</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	MCFN Question	Enbridge Response		
MCFN Question	Enbridge Response					

<p><b>representatives have any questions or concerns?</b></p>	<p>The MCFN representative asked about other pipelines and easements in the area.</p>	<p>The Enbridge representative reviewed the different pipelines in the area.</p>
	<p>The MCFN representative asked who the regulator was on the Project.</p>	<p>The Enbridge advised the MCFN representative that the Ontario Energy Board (“OEB”) was the regulator for the Project. The Enbridge representative explained the regulatory review process.</p>
	<p>The MCFN representative asked how many water crossing there were and how they are handled.</p>	<p>The Enbridge representative advised there are 4 water crossings with the major one being Spencer Creek. The Enbridge representative explained the dam and pump process and the process for dealing with aquifers.</p>
	<p>The MCFN representative asked for information as to how crossing Hwy 6 was being addressed.</p>	<p>The Enbridge representative explained that it would be a trenchless crossing due to rock and advised that they were also considering micro tunneling.</p>
	<p>The MCFN representative asked about the swamp area and how Enbridge prevents Cyst Nematode.</p>	<p>The Enbridge representatives discussed the environmental mitigation measures that would be in place and discussed the cleaning of machinery to prevent the Cyst Nematode (if present).</p>
	<p>The MCFN representative asked about going through a Nursery and the water that would be needed for the Nursery.</p>	<p>The Enbridge representative explained that water barrels would be brought in to deal with the shutting off of water.</p>
	<p>The MCFN representative asked about deer yards in the easement.</p>	<p>The Enbridge representative explained that due to the time of year of construction, this would not be a concern.</p>

		The MCFN expressed an interest in having monitors on site for Stage 2 environmental assessments.	The Enbridge representative advised that Stantec was responsible for the Archaeology and Natural Heritage studies and advised that they would be in touch to address this request.
		The MCFN representative noted that the 10 km pipeline was crossing 3 different jurisdictions: Hamilton, Grand River and Halton.	The Enbridge representative asked if MCFN could bring their knowledge on native plants in the area to assist Enbridge with the Project.
<b>Does the community have any outstanding concerns?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	To date, MCFN does not have any outstanding concerns.	

<b>Six Nations of the Grand River First Nation “SNGRFN”          Consultation Supervisor          519-753-0665</b>		
<b>Was project information provided to the community?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>On February 11, 2019, an Enbridge representative notified SNGRFN of the Project. The Project notification letter included a map and description of the Project. No response was received from the SNGRFN representative.</p> <p>On February 12, 2019, an Enbridge representative sent an email and Project notification letter to the SNGRFN representative. The letter advised that Stantec would be undertaking the environmental study and provided the logistical information for the Information Session.</p> <p>On February 23, 2019, an Enbridge employee sent an email to a SNGRFN representative advising that he would be reaching out to set up a meeting on the Project. No response was received from the SNGRFN representative.</p> <p>On May 25, 2019, an Enbridge representative called a SNGRFN representative about the Project and requested some dates for a consultation meeting.</p>

		<p>On May 29, 2019, a SNGRFN representative sent an email to the Enbridge representative providing dates to set up the meeting to discuss the Project. The parties agreed to meet on June 5.</p> <p>On June 5, 2019, an in-person meeting took place between Enbridge and SNGRFN to discuss the Project.</p> <p>The Enbridge representatives reviewed the presentation and Project map with SNGRFN. The Enbridge representatives explained the purpose of the Project:</p> <ul style="list-style-type: none"> <li>• To construct a new NPS 48inch diameter natural gas pipeline to accommodate additional demand for natural gas;</li> <li>• New construction will parallel three existing pipelines; and</li> <li>• The planned construction date is 2021.</li> </ul> <p>The Enbridge representatives explained Archaeology and Environmental surveys and the mitigation that was involved.</p> <p>On August 29, 2019, a representative from Stantec, an Enbridge consultant on the Project, emailed the SNGRFN representative to advise them that Stantec would be completing a Stage 2 archaeological assessment and natural heritage study for the Project and invited the community to participate in the assessment.</p>				
<p><b>Was the community responsive/did you have direct contact with the community?</b></p>	<p><input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No</p>	<p>SNGRFN and Enbridge representatives had been in contact through email and telephone. The parties also met in person on June 5, 2019.</p>				
<p><b>Did the community members or representatives have any</b></p>	<p><input checked="" type="checkbox"/> Yes  <input type="checkbox"/> No</p>	<p>On June 5, 2019, Enbridge and SNGRFN met in person to discuss the Project and to address any questions or concerns from SNGRFN.</p> <table border="1"> <thead> <tr> <th>SNGRFN Question</th> <th>Enbridge Response</th> </tr> </thead> <tbody> <tr> <td>The SNGRFN representative asked where the gas comes</td> <td>The Enbridge representative explained the origins of natural gas and where</td> </tr> </tbody> </table>	SNGRFN Question	Enbridge Response	The SNGRFN representative asked where the gas comes	The Enbridge representative explained the origins of natural gas and where
SNGRFN Question	Enbridge Response					
The SNGRFN representative asked where the gas comes	The Enbridge representative explained the origins of natural gas and where					

<b>questions or concerns?</b>		from, since Ontario does not have natural gas.	Ontario natural gas comes from.
		The SNGRFN representative asked about water crossings and how they are completed.  The SNGRFN representative expressed concern over Spencer Creek, which is one of the water crossings.	The Enbridge representative explained the dam and pump process that is used.
		The SNGRFN representative asked about environmental enhancements in the clean-up process and if the land was left better than it was found.	The Enbridge representative explained the clean-up that is completed though the environmental process.
		The SNGRFN representatives expressed an interest in having monitors on site for Stage 2 environmental assessments.	The Enbridge representative advised that Stantec was responsible for the Archaeology and Natural Heritage studies and would be in touch to address this.
		The SNGRFN representative asked about accommodation on the Project.	Both parties agreed to discuss this at a later date.
<b>Does the community have any outstanding concerns?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	To date, SNGRFN does not have any outstanding concerns.	

**INDIGENOUS CONSULTATION REPORT: LOG AND PROJECT CORRESPONDENCE**

At October 10, 2019

Haudenosaunee Development Institute (“HDI”)					
Line Item	Date of Engagement	Method of Engagement	Summary of Engagement Activity	Response from Community/Outstanding Issues	Attachment
1.1	February 11, 2019	Email	An Enbridge representative notified HDI of the Project. The Project notification letter included a map and description of the Project.	On February 13, 2019 a representative of HDI responded to confirm receipt of the Project notification. The HDI representative provided the Enbridge representative with a new email address for future outreach.	Schedule A Attachment 1.1
1.2	February 12, 2019	Email	An Enbridge representative sent an email to the HDI representative along with a letter notifying them about the Project. The letter advised that Stantec would be undertaking the environmental study and provided HDI with the logistical information for the Information Session.		Attachment 1.2
1.3	March 6, 2019	Email	An Enbridge representative sent an email to the HDI representative requesting a meeting to discuss the Project.	On March 7, 2019 an HDI representative responded providing dates for the meeting.	Attachment 1.3
1.4	March 14, 2019 April 18, 2019	Email In-person Meeting with Enbridge and HDI	An Enbridge representative sent an email to the HDI representative to confirm April 18, 2019 as a date to meet to discuss the Project. The Enbridge representative explained the presentation and Project map with HDI. The Enbridge representative explained the purpose of the Project: <ul style="list-style-type: none"> <li>• To construct a new NPS 48inch diameter natural gas pipeline to accommodate additional demand for natural gas;</li> <li>• New construction will parallel three existing pipelines; and</li> <li>• The planned construction date is 2021.</li> </ul>	The HDI representatives asked about the new Enbridge corporate structure. The Enbridge representative explained the merger and reviewed the new structure.	Attachment 1.4 Schedule D

			<p>The Enbridge representatives explained Archaeology and Environmental surveys and the mitigation that was involved.</p>	<p>The HDI representatives asked about the lifespan of the pipe and the security of natural gas supply. The Enbridge representative explained that continual monitoring of the pipeline and ensuring all regulations are in place will allow for the pipeline to operate for decades. The Enbridge representatives advised that there are no concerns with the security of natural gas supply at this time.</p> <p>The HDI representative asked about species at risk, particularly salamanders and snapping turtles. The Enbridge representatives discussed the mitigation process for species at risk, which can be found in the Environmental report.</p> <p>The HDI representative asked if the natural gas line could be converted to oil. The Enbridge representative explained that there was no intention or plan for the</p>
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1.5	July 17, 2019	Email	An Enbridge representative sent an email to the HDI representative to provide information on the Archaeology work on the Project. The Enbridge representative informed HDI that Stantec would be responsible for this and it might begin in the fall. He provided assurance that they would be contacted to be involved in the Stage 2 environmental assessment work.	line to be converted to oil as the intention is for the line to be used specifically for natural gas.  The HDI representatives requested having monitors on site due to the environmental sensitivities in the area. The Enbridge representative advised that Stage 2 environmental assessments would be completed by Stantec and that they would be in touch to arrange for monitoring.	Attachment 1.5
1.6	August 29, 2019	Email	A representative from Stantec, an Enbridge consultant on the Project, emailed the HDI representative to advise them that Stantec would be completing a Stage 2 archaeological assessment and natural heritage study for the Project and invited the community to participate in the assessment.	On September 10, 2019, a representative from Stantec emailed the HDI representative to follow up on the invitation to participate in the assessment.	Attachment 1.6
<b>Mississauga of the Credit First Nation ("MCFN")</b>					
<b>Line Item</b>	<b>Date of Engagement</b>	<b>Method of Engagement</b>	<b>Summary of Engagement Activity</b>	<b>Response from Community/Outstanding Issues</b>	<b>Attachment</b>

2.1	February 11, 2019	Email	An Enbridge representative notified MCFN about the Project. The Project notification letter included a map and description of the Project.	On February 12, 2019, an MCFN representative emailed the Enbridge representative requesting a meeting on the Project.	Schedule A Attachment 2.1
2.2	February 12, 2019	Email	An Enbridge representative sent an email and Project notification letter to an MCFN representative. The letter advised that Stantec would be undertaking the environmental study for the Project and provided the logistical information for the Information Session.		Attachment 2.2
2.3	February 25, 2019	Email	An Enbridge representative emailed the MCFN consultation manager to set up a meeting time to discuss the Project. The Enbridge representative advised that he had requested a copy of the Stage One Environmental Assessment report from Stantec as per MCFN's request. The Enbridge representative advised the MCFN representative that he would provide them with the Report once it has been received.	No response was received from MCFN.	Attachment 2.3
2.4	May 8, 2019	Email	An Enbridge representative emailed a representative from MCFN to request dates when they could meet to discuss the Project.	The parties agreed to meet on June 11, 2019.	Attachment 2.4
2.5	May 28, 2019	Email	The Enbridge representative emailed the MCFN representative to provide them with a copy of the Stage One Archeological report.	On May 29, 2019, the MCFN representative responded acknowledging receipt and advised they would be in contact with questions once they had completed their review.  The MCFN representative requested to be advised of Stage 2 Environmental assessment work and reminded the Enbridge representative that they would require Field Liaison Representatives (monitors) to be present during the work.	Attachment 2.5

	<p>June 11, 2019</p>	<p>In person meeting between Enbridge and MCFN</p>	<p>The Enbridge representatives reviewed the presentation and Project map with HDI. The Enbridge representative explained the purpose of the Project:</p> <ul style="list-style-type: none"> <li>• To construct a new NPS 48inch diameter natural gas pipeline to accommodate additional demand for natural gas</li> <li>• New construction will parallel three existing pipelines</li> <li>• The planned construction date is 2021</li> </ul> <p>The Enbridge representatives explained Archaeology and Environmental surveys and the mitigation that was involved. A table sized map of the area was left with MCFN for their review.</p>	<p>The MCFN representative asked about other pipelines and easements in the area. The Enbridge representative reviewed the different pipelines in the area.</p> <p>The MCFN representative asked who the regulator was on the Project. The Enbridge representative advised the MCFN representative that the Ontario Energy Board ("OEB") was the regulator for the Project. The Enbridge representative explained the regulatory review process.</p> <p>The MCFN representative asked how many water crossings there were and how they are handled. The Enbridge representative advised there are 4 water crossings with the major one being Spencer Creek. The Enbridge representative explained the dam and pump process and the process for dealing with aquifers.</p>	<p>Schedule D</p>
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	<p>The MCFN representative asked for information as to how crossing Hwy 6 was being addressed. The Enbridge representative explained that it would be a trenchless crossing due to rock and advised that they were also considering micro tunneling.</p> <p>The MCFN representative asked about the swamp area and how Enbridge prevents Cyst Nematode. The Enbridge representatives discussed the environmental mitigation measures that would be in place and discussed the cleaning of machinery to prevent the Cyst Nematode (if present).</p> <p>The MCFN representative noted that the 10 km pipeline was crossing 3 different jurisdictions: Hamilton, Grand River and Halton.</p> <p>The MCFN representative asked about going through a Nursery and</p>				
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	<p>the water that would be needed for the Nursery. The Enbridge representative explained that water barrels would be brought in to deal with the shutting off of water.</p> <p>The MCFN representative asked about deer yards in the easement. The Enbridge representative explained that due to the time of year of construction, this would not be a concern.</p> <p>The Enbridge representative asked if MCFN could bring their knowledge on native plants in the area to assist Enbridge with the Project.</p> <p>An MCFN representative expressed an interest in having monitors on site for Stage 2 environmental assessments. The Enbridge representative advised that Stantec was responsible for the Archaeology and Natural Heritage studies and would be in touch to address their request.</p>

2.6	August 29, 2019	Email	<p>A representative from Stantec, an Enbridge consultant on the Project, emailed the MCFN representative to advise them that Stantec would be completing a Stage 2 archaeological assessment and natural heritage study for the Project and invited the community to participate in the assessment.</p> <p>A MCFN representative sent an email and letter expressing concern over the consultation on the Project.</p>	Attachment 2.6
2.7	September 17, 2019	Email	<p>The Enbridge representative sent an email back acknowledging the letter and advised that Enbridge would reach out to the consultation department to obtain further information and discuss.</p>	Attachment 2.7
2.8	September 18, 2019	Telephone call	<p>An Enbridge representative called two MCFN representatives, leaving messages requesting a telephone call back to discuss the letter.</p> <p>On September 20, 2019, a MCFN representative called the Enbridge representative to discuss the letter dated September 16. They discussed the consultation process and worked through the timeline of the Project to ensure both parties were in agreement. The MCFN will forward a previous used monitor agreement to the Enbridge representative to be used for the Project. Both parties agreed to continue with the</p>	Attachment 2.8

	<p>ongoing consultation on the project.</p> <p>The previously used agreement was forwarded on September 20, 2019 to the Enbridge representative.</p> <p>Also on September 20, 2019, a representative from MCFN called the Enbridge representative to discuss the letter dated September 16, 2019. The Enbridge representative advised that he had spoken to a MCFN representative earlier in the day and they addressed the consultation process and the involvement of MCFN in the Project. The Enbridge representative advised that no environmental surveys would be completed without MCFN's knowledge and/or participation. The MCFN was satisfied with the discussion and agreed that contact with the MCFN should continue through the</p>				
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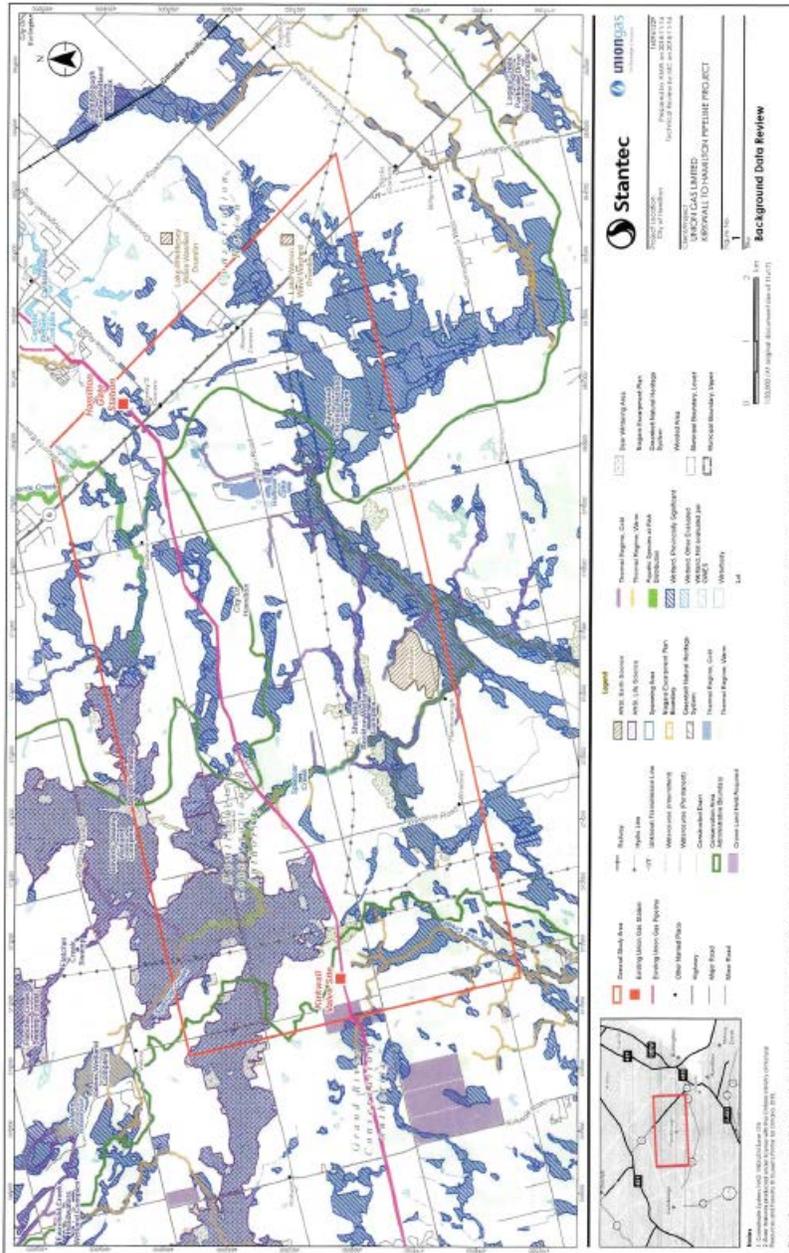
2.9	September 24, 2019	Email	An Enbridge representative sent an email and a copy of the updated Monitor agreement to the MCFN representatives for their review and signature.	Archaeological Operations Supervisor. The MCFN representative returned the signed agreement on September 24, 2019. The MCFN representative also asked if the fieldwork on the Project has been completed.  The Enbridge representative responded back by email to advise that Stantec would be doing the environmental fieldwork surveys and it had not started yet.	
2.10	October 1, 2019	Telephone call	An Enbridge representative called and left a message for a MCFN representative to set up a meeting with Stantec, Enbridge and MCFN to discuss the Project. The Enbridge representative provided some dates for this meeting.	The MCFN representative responded to the Enbridge representative in an email advising that the date proposed did not work but suggested October 11 as an alternative date.  Both parties agreed to the October 11 date.	Attachment 2.10
2.11	October 1, 2019	Email	An Enbridge representative emailed the signed monitor agreement to the MCFN representative.		Attachment 2.11
2.12	October 9, 2019	Email	A Stantec representative emailed the representatives from Enbridge and MCFN to cancel the meeting due to other commitments.	On October 10, 2019 the MCFN representative responded to all parties suggesting postponing	Attachment 2.12

									the planned meeting until 2020.
Six Nations of the Grand River First Nation ("SNGRFN")									
Line Item	Date of Engagement	Method of Engagement	Summary of Engagement Activity	Response from Community/Outstanding Issues	Attachment				
3.1	February 11, 2019	Email	An Enbridge representative notified SNGRFN of the Project. The Project notification letter included a map and description of the Project.	No response received from the SNGRFN representative.	Schedule A Attachment 3.1				
3.2	February 12, 2019	Email	An Enbridge representative sent an email and Project notification letter to the SNGRFN representative. The letter advised that Stantec would be undertaking the environmental study and provided the logistical information for the information Session.		Attachment 3.2				
3.3	February 23, 2019	Email	An Enbridge employee sent an email to a SNGRFN representative advising that he would be reaching out to set up a meeting on the Project	No response received from the SNGRFN representative.	Attachment 3.3				
	May 25, 2019	Telephone call	An Enbridge representative called a SNGRFN representative about the Project and requested some dates for a consultation meeting.						
3.4	May 29, 2019	Email	A SNGRFN representative sent an email to the Enbridge representative providing dates to set up the meeting to discuss the Project.	The parties agreed to meet on June 5.	Attachment 3.4				
	June 5, 2019	In person meeting between Enbridge and SNGRFN	<p>The Enbridge representatives reviewed the presentation and Project map with SNGRFN. The Enbridge representative explained the purpose of the Project:</p> <ul style="list-style-type: none"> <li>To construct a new NPS 48inch diameter natural gas pipeline to accommodate additional demand for natural gas</li> <li>New construction will parallel three existing pipelines</li> <li>The planned construction date is 2021</li> </ul> <p>The Enbridge representatives explained Archaeology and Environmental surveys and the mitigation that was involved.</p>	<p>The SNGRFN representative asked where the gas comes from, since Ontario does not have natural gas. The Enbridge representative explained the origins of natural gas and where Ontario natural gas comes from.</p> <p>The SNGRFN representative asked about water crossings and how they are completed. The Enbridge</p>	Schedule D				



3.5	August 29, 2019	Email	<p>A representative from Stantec, an Enbridge consultant on the Project, emailed the SNGRFN representative to advise them that Stantec would be completing a Stage 2 archaeological assessment and natural heritage study for the Project and invited the community to participate in the assessment.</p>	<p>Enbridge representative advised that Stantec was responsible for the Archaeology and Natural Heritage studies and would be in touch to address this.</p> <p>The SNGRFN representative asked about accommodation on the Project. Both parties agreed to discuss this at a later date.</p>	Attachment 3.5
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### Schedule A – Map of Project Location



## Schedule B – Letter of Notification



November 29, 2018

Ms. Shannon McCabe  
Senior Policy Advisor  
Indigenous Energy Policy  
Ministry of Energy  
77 Grenville Street, 6<sup>th</sup> Floor  
Toronto, ON M7A 2C1

Dear Ms. McCabe:

**Re: NPS 48 Kirkwall-Hamilton Pipeline Project**

Enclosed please find Union's Report to the Ministry of Energy to determine the Indigenous Consultation required for the above noted project. I have also enclosed a copy of the location map for your reference.  
In the event that you have any questions on the above or would like to discuss in more detail, please do not hesitate to contact me.

Yours truly,

*Ken McCorkle*

Ken McCorkle  
Manager, Indigenous Affairs  
Union Gas Limited  
50 Keil Drive North  
Chatham, ON N7M 5M1  
Phone: 519-436-4600 ext. 5002243  
Email: kmccorkle@uniongas.com

**Union Gas Limited – Proposed NPS 48 Kirkwall – Hamilton Pipeline Project  
Summary for the Ministry of Energy, Northern Development and Mines**

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**1. Introduction**

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This Summary Report has been prepared to provide the Ministry of Energy, Northern Development and Mines (“ENDM”) with an overview of the Kirkwall – Hamilton Pipeline Project (“Project”), to support the preparation of a contact list of indigenous communities that may have an interest in the Project.

**1.1 Project Overview**

To increase existing capacity and accommodate additional demand for natural gas, Union Gas Limited (“Union Gas”) is proposing to construct a new NPS 48-inch diameter natural gas pipeline. The proposed pipeline is planned to be in service as early as Fall 2021 and will be located within the municipality of the City of Hamilton. The proposed pipeline will generally parallel three existing Union Gas pipelines between the existing Kirkwall valve site and the Hamilton gate station. The length of the pipeline will be determined by the final route chosen but will be approximately 10-14 km. The study area within which alternative routes will be developed and evaluated, and within which a preferred route will be identified is shown in Figure 1 (attached).

The following table provides the co-ordinates for the valve site and station.

Proposed Locations	Latitude	Longitude
Kirkwall Valve Site	43.351282	-80.118709
Hamilton Gate Station	43.381753	-80.004919

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**2. Regulatory Requirements and Approvals**

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Ontario Energy Board (“OEB”) review and approval is required before this Project can proceed. As part of that application, an Environmental Review (ER) will be conducted in accordance with the OEB *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario 7<sup>th</sup> Edition* (2016). The ER for this Project is anticipated to be completed and submitted to the OEB as early as summer 2019. Construction of the Project is planned to begin as early as spring/summer 2021 with an in-service date 6 months after construction start. Other permits and authorizations for the Project will be determined and may be necessary at the Federal, Provincial and Municipal levels.

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**3. Environmental Planning Process**

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The environmental planning process for the Project will be initiated in the fall of 2018 by Union Gas, with support provided throughout the process by consultant archaeologists, cultural heritage specialists,

and other environmental specialists. The following provides a general overview of the environmental planning process for the Project:

- **Complete an Environmental Report (ER)**
  - Describe the proposed work necessary for the Project;
  - Complete a route evaluation study
  - Describe the procedures that will be followed during construction of the facilities;
  - Identify potential environmental impacts and recommend measures to minimize those impacts; and
  - Describe the consultation opportunities.
- **Complete all necessary studies and assessments**
  - An Archaeological Assessment will be conducted by a licensed archaeologist in accordance with the Ministry of Tourism, Culture and Sport (MTCS) guidelines to identify known or potential archaeological resources within the Project area and will develop an appropriate mitigation plan if required.
  - A heritage specialist will review the running line for potential cultural heritage landscapes and built heritage resources and will develop an appropriate mitigation plan if required.
  - A qualified biologist will review the running line for potential species at risk and determine if any species will be impacted by construction activities and will develop an appropriate mitigation plan if required.
- **Obtain all necessary environmental permits and approvals**
  - Union Gas will work with all relevant governing agencies (i.e. the Ministry of the Environment, Conservation and Parks (MECP), the Ministry of Natural Resources and Forestry (MNRF), Grand River Conservation Authority (GRCA), Hamilton Conservation Authority (HCA), Conservation Halton (CH), Fisheries and Oceans Canada (DFO)) to obtain any permits and/or approvals should it be necessary.

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#### 4. Consultation

Consultation is an important part of the environmental planning process and may include discussions with the relevant federal and provincial agencies, the municipality, interested and potentially affected landowners, and interest groups, as well as First Nations and Metis Nations as identified by ENDM.

Union Gas will contact the municipality, MECP, MNRF, DFO, GRCA, HCA and CH to discuss and review the project. Union Gas will also contact landowners along the proposed route.

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#### 5. Project Activities

The pipeline will be installed using Union Gas's standard construction practices which include grading the site, digging the trench, installing the welded pipeline in the trench, testing the pipeline, and restoring the area to its original condition. The crossing methods used for watercourse crossings along the selected route will be determined during detailed design and will be based on site specific conditions and the results of geotechnical investigations.

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#### 6. Summary and Conclusion

The purpose of this report is to provide ENDM with preliminary information regarding the Project and acquire a list of Indigenous communities that may be interested in providing feedback during the Project planning process. Data collection and field studies will be undertaken to determine the potential effects of the Project during the construction and operation phases. Mitigation measures to manage these potential effects will be identified and will include proposed monitoring and contingency plans which will be implemented to ensure effects are minimized.

**Schedule C – Letter of Delegation of Authority**

Ministry of Energy, Northern Development and Mines  
 77 Grenville Street  
 6<sup>th</sup> Floor  
 Toronto ON M7A 2C1  
 Tel: (416) 314-2598

Ministère de l'Énergie, Développement du Nord et Mines  
 77 rue Grenville  
 6<sup>e</sup> étage  
 Toronto ON M7A 2C1  
 Tél: (416) 314-2598



**Indigenous Energy Policy**

VIA EMAIL

February 8, 2019

Ken McCorkle  
 Manager, Indigenous Affairs  
 Union Gas Limited  
 50 Keil Drive North  
 Chatham, ON  
 N7M 5M1

**Re: NPS 48 Kirkwall Hamilton Pipeline Expansion Project**

Dear Ken McCorkle:

Thank you for your email dated November 29, 2019 notifying the Ministry of Energy, Northern Development and Mines of Union Gas Limited's proposal for the NPS 48 Kirkwall Hamilton Pipeline Project and requesting clarification on Duty to Consult requirements.

I understand that Union Gas Limited is proposing to construct a new NPS 48-inch diameter natural gas pipeline to service existing and potential customers in the municipality of the city of Hamilton. The project consists of approximately 10-14 km of a new NPS 48 inch diameter natural gas pipeline that will generally parallel three existing Union Gas pipelines between the existing Kirkwall valve site and the Hamilton gate station. The pipeline is planned to be in service by Fall 2021.

Proposed Locations	Latitude	Longitude
Start Kirkwall Valve Site	43.351282	-80.118709
End Point Hamilton Gate Station	43.381753	-80.004919

The Ministry has reviewed the information provided relative to its current understanding of the interests of First Nation and Métis communities in the area and has determined that it may have the potential to affect First Nation and Métis communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982.

As you are aware, the Government of Ontario (the "Crown") has a constitutional duty to consult and accommodate First Nation and Métis communities when Crown project approvals may lead to an appreciable adverse impact on established or asserted Aboriginal or treaty rights. While the legal duty to consult falls on the Crown, the Crown may delegate the day-to-day, procedural aspects of consultation to project proponents. The Ministry of the Energy is delegating the procedural aspects of consultation to Union Gas Limited through this letter.

Based on the Crown's preliminary assessment of First Nation and Métis community rights and project impacts, the following Aboriginal communities should be consulted on the basis that they have or may have constitutionally protected Aboriginal or treaty rights that may be adversely affected by the Project:

Community	Mailing Address
Mississaugas of the New Credit First Nation	2789 Mississauga Road R.R. #6 Hagersville, ON N0A 1H0
Six Nations of the Grand River *	Six Nations of the Grand River Elected Council PO Box 5000 Ohsweken, Ontario N0A 1M0
	Haudenosaunee Confederacy Chiefs Council P.O Box 714 Ohsweken, ON N0A 1M0

Note:

\*Please note, proponents are required to consult with both, Six Nations Elected Council and Haudenosaunee Confederacy Chiefs Council (HCCC). Please copy Haudenosaunee Development Institute (HDI) on all correspondence to Haudenosaunee Confederacy Chiefs Council (HCCC).

This rights-based consultation list is based on information that is subject to change. First Nation and Métis communities may make new rights assertions at any time, and other developments (e.g. the discovery of Aboriginal archaeological sites) can occur that may require additional First Nation and/or Métis communities to be notified and/or consulted. If you become aware of potential rights impacts on communities that are not listed above at any stage of the consultation and approval process, kindly bring this to the attention of the Ministry with any supporting information regarding the claim. The

Ministry will then assess whether it is necessary to include the community on the rights-based consultation list above.

It is the Ministry's expectation that Union Gas Limited will communicate directly with the communities listed above, and that Union Gas Limited will:

- Notify the communities that Union Gas Limited has been delegated the procedural aspects of consultation by the Ministry of Energy, Northern Development and Mines on behalf of Ontario.
- Notify the communities that they may contact the Crown directly should they have any questions or concerns.
- Provide the communities with the following contact information should they wish to communicate directly with the Ministry:  
Raina Crasto  
Policy Advisor  
Indigenous Energy Policy  
Ministry of Energy, Northern Development and Mines  
416-326-4571  
[Raina.crasto@ontario.ca](mailto:Raina.crasto@ontario.ca)
- Please copy the Ministry contact when communicating the above information.

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process. Union Gas Limited's responsibilities for procedural aspects of consultation include:

- Providing the First Nation and Métis communities with timely notice of the project for the purposes of considering possible impacts on their Aboriginal and/or treaty rights;
- In that notice, clearly stating that Union Gas Limited has been delegated the procedural aspects of consultation by the Ministry of Energy, Northern Development and Mines on behalf of Ontario for the project.
- Providing First Nation and Métis communities with information about the project including anticipated impacts, and information on project timelines;
- Following up with First Nation and Métis communities to ensure they have received project information and that they are aware of the opportunity to express comments and concerns about the project;
- Explaining the regulatory and approval processes that apply to the project;
- Gathering information about how the project may adversely impact the relevant Aboriginal and/or treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
- Considering the comments and concerns raised by First Nation and Métis communities and providing responses;

- Where appropriate, discussing accommodation, including mitigation or other measures to address potential adverse impacts on Aboriginal and/or treaty rights;
- Where appropriate, developing and discussing with the Crown appropriate accommodation measures;
- Taking reasonable steps to foster positive relationships with the First Nation and Métis communities;
- Bearing the reasonable costs associated with these procedural aspects of consultation; and
- Maintaining records of activities in relation to carrying out the delegated procedural aspects of consultation and providing information to the Ministry.

If you have any questions about this letter or require any additional information please contact Raina Crasto at 416-326-4571 or [Raina.crasto@ontario.ca](mailto:Raina.crasto@ontario.ca)

Sincerely,



Shannon McCabe  
A/Manager  
Indigenous Energy Policy

C: Ontario Pipeline Coordinating Committee (OPCC)

## Schedule D – Presentation of the Project

### Kirkwall-Hamilton Pipeline Project Information Session



#### Welcome

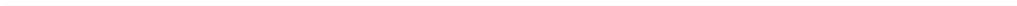
Please view the display boards, speak to members of Stantec Consulting Ltd. (Stantec) and/or Enbridge Gas Inc. (Enbridge Gas), and complete a questionnaire providing your feedback.

Sign up at the front desk to have your attendance recorded as part of the environmental study and to receive future project updates. (Note: As of Jan. 1, 2019, Union Gas and Enbridge Gas Distribution have amalgamated into one utility with the legal name Enbridge Gas Inc.)

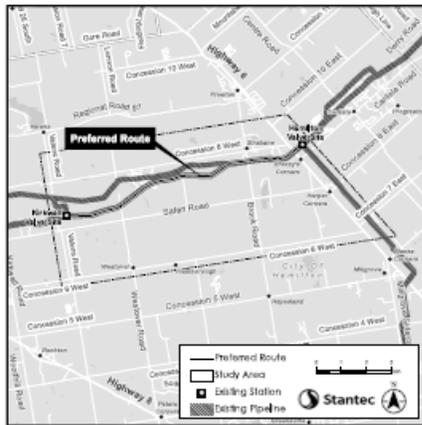
#### Our commitment

Enbridge Gas is committed to involving community members in this proposed project. We are dedicated to providing you with up-to-date information in an open, honest and respectful manner and will carefully consider your input.

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 is committed to environmental stewardship and conducts all of its operations in an environmentally responsible manner.



## Kirkwall-Hamilton Pipeline Project Information Session



### Project overview

The proposed pipeline will be constructed between Enbridge Gas' existing Kirkwall valve site, located northeast of the intersection of Safari Road and Valens Road and Enbridge Gas' existing Hamilton valve site, located east of Highway 6 and north of Carlisle Road. The proposed pipeline will parallel three existing Enbridge Gas pipelines, will be 10 km in length and 48 inches in diameter.

If approved, construction of the pipeline could begin as early as spring/summer 2021 and be complete by the end of 2021.



## Kirkwall-Hamilton Pipeline Project Information Session



### Why is Enbridge Gas undertaking this project?

Enbridge Gas is undertaking the proposed project to increase existing capacity and accommodate additional demand for natural gas along its main natural gas transmission system, the Dawn Parkway System.



## Kirkwall-Hamilton Pipeline Project Information Session



### Environmental study process

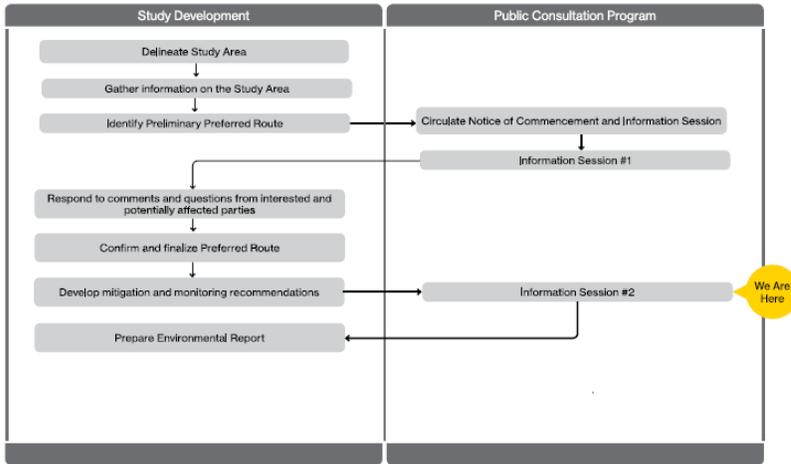
The environmental study and subsequent Environmental Report for the project will be completed as per the Ontario Energy Board's (OEB) "Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (2016)."

The study will:

- Undertake consultation to understand the views of interested and potentially affected parties.
- Consult with Indigenous Communities to understand interests and potential impacts.
- Be conducted during the earliest phase of the project.
- 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.



# Kirkwall-Hamilton Pipeline Project Information Session



## Kirkwall-Hamilton Pipeline Project Information Session



### Ontario Energy Board (OEB) review and approval process

The OEB is a body that regulates the natural gas industry in Ontario, in the public interest.

Enbridge Gas plans to submit an application for this project to the OEB. This application will include comprehensive information on the project including:

- The need for the project.
- Facility alternatives.
- Project costs and economics.
- Pipeline design and construction.
- Environmental mitigation measures.

- Land requirements.
- Consultation with Indigenous Communities.
- Consultation with various stakeholders including landowners and government agencies.

The OEB will then hold a public hearing to review the project.

If after this review 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 on the project newsletter and at: [www.ontarioenergyboard.ca](http://www.ontarioenergyboard.ca)



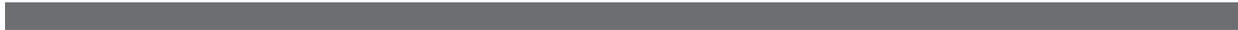
## Kirkwall-Hamilton Pipeline Project Information Session



### Route evaluation methodology

The Preferred Route will be selected through a five-step process:

- Step 1**  
Develop Routing Parameters
    - a. Establish a study area.
    - b. Establish routing objectives.
      - i. Follow a reasonably direct path between start and end points.
      - ii. Avoid sensitive environmental and socio-economic features.
    - iii. Use existing linear features.
    - iv. Follow existing lot and property lines.
  - c. 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.
- Step 3**  
Route Evaluation  
An evaluation of the Alternative Routes will be conducted based on:
  - a. A quantitative comparative evaluation of impacts to environmental and socio-economic features.
  - b. A qualitative comparative evaluation.Once complete, a Preliminary Preferred Route will be determined.
- Step 4**  
Input on the Preliminary Preferred Route  
Gather input on the Preliminary Preferred Route.
- Step 5**  
Confirmation of the Preferred Route  
A Preferred Route will be confirmed following consultation with landowners and other affected parties. The location of the Preferred Route may be refined as the project moves forward based on pre-construction field investigations, landowner requests and/or engineering and construction considerations.



## Kirkwall-Hamilton Pipeline Project Information Session



### Route evaluation methodology

In the study area, a variety of pipeline routing constraints are present: natural heritage features, slope, topography, and socio-economic features and landscapes. After creating a Geographic Information System (GIS) database of opportunities and constraints, a GIS routing exercise was undertaken that examined all mapped routing constraints and opportunities to generate alternative routes. A field reconnaissance was undertaken to review whether any of the existing Enbridge Gas pipeline easements could be paralleled, and to identify potential route alternatives.

Routing follows existing linear infrastructure where available and avoid, to the extent possible, existing environmental and socio-economic features.



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## Kirkwall-Hamilton Pipeline Project Information Session



### Preferred route

The first Information Session presented a Preliminary Preferred Route that included two route deviations and an Alternate Route. Further quantitative and qualitative evaluation resulted in the selection of a Preferred Route.

The Preferred Route was selected based on:

- Operational efficiencies due to the ability to locate the proposed pipeline parallel and overlapping an existing Enbridge Gas pipeline easement.
- A review of comments received to date from interested and potentially affected parties.
- The experience of the Project Team in routing linear infrastructure.

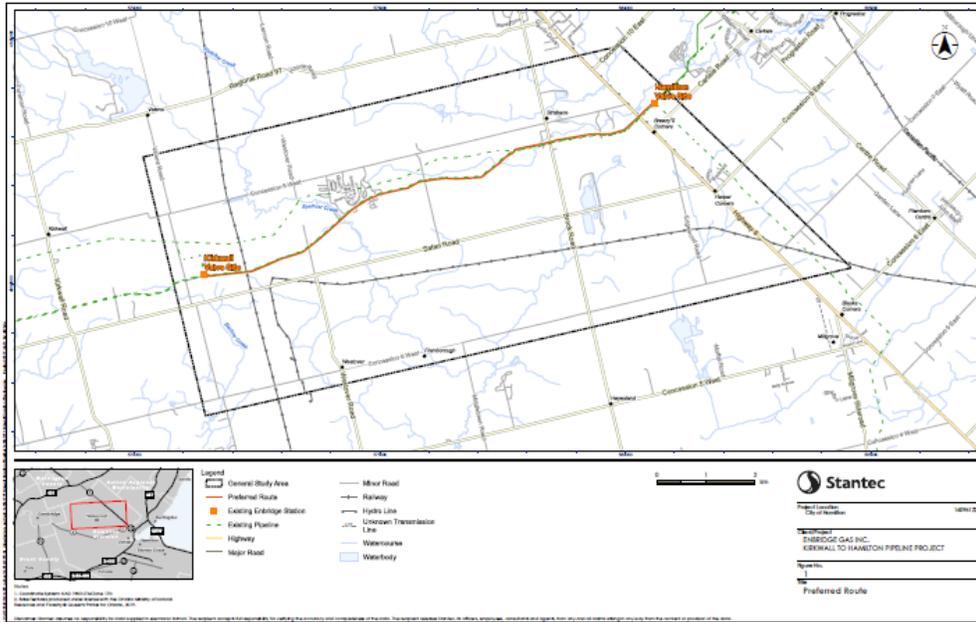
Enbridge Gas will undertake detailed design to determine the exact location of the pipeline, permanent easement and temporary land use requirements. Detailed design will be influenced by supplemental studies (including environmental studies) and site-specific requests from landowners and agencies.



# Kirkwall-Hamilton Pipeline Project Information Session



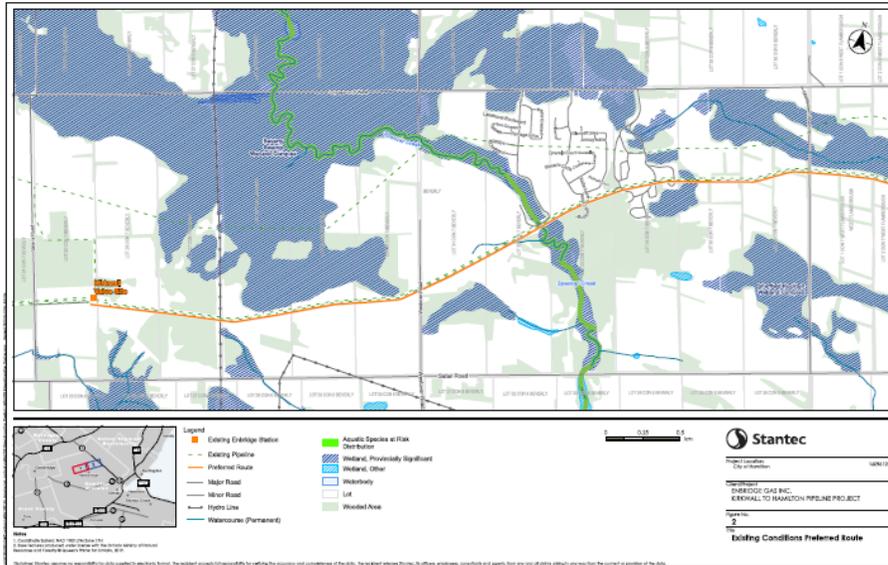
## Preferred route



# Kirkwall-Hamilton Pipeline Project Information Session



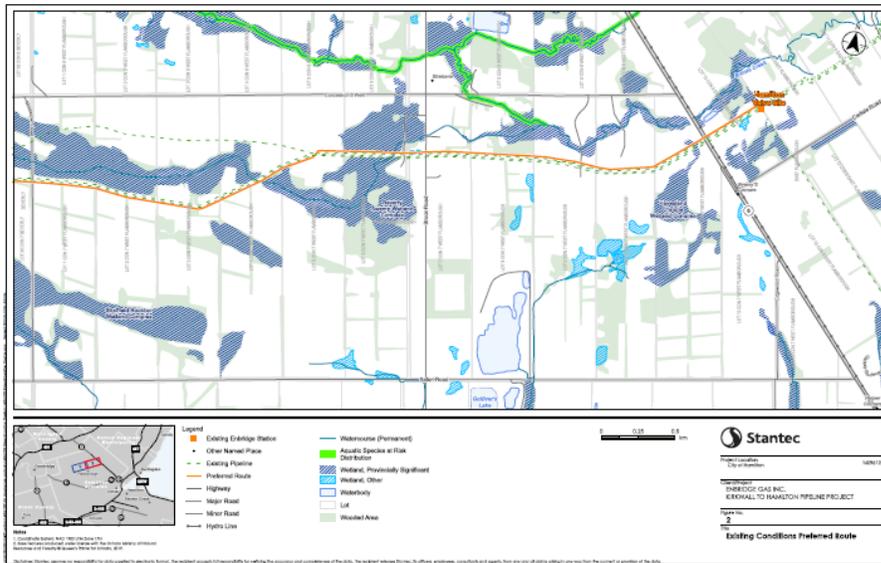
## Existing features



# Kirkwall-Hamilton Pipeline Project Information Session



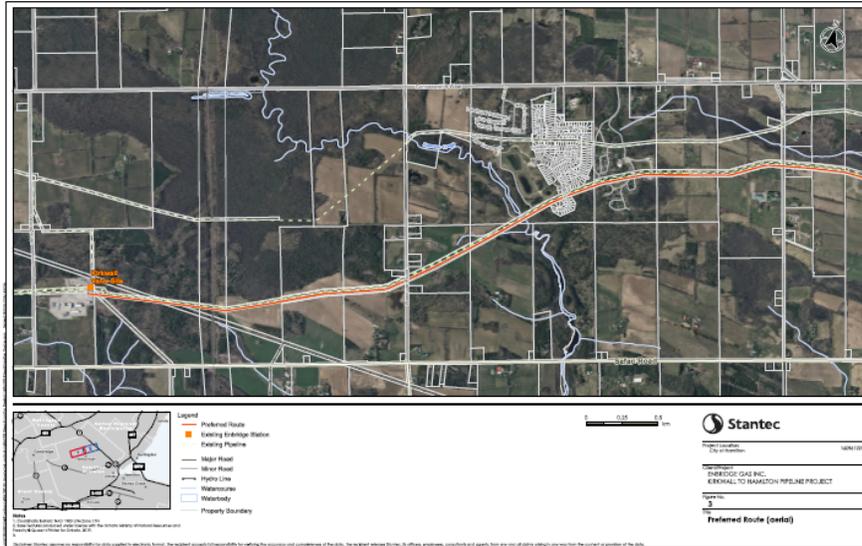
## Existing features



# Kirkwall-Hamilton Pipeline Project Information Session



## Preferred route



# Kirkwall-Hamilton Pipeline Project Information Session



## Preferred route



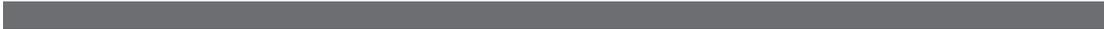
## Kirkwall-Hamilton Pipeline Project Information Session



### Access and land requirements

An Enbridge Gas Representative shall begin discussions with landowners along the preferred route following this Information Session for the appropriate land rights necessary to construct the pipeline. Enbridge Gas is committed to working with all directly affected landowners in anticipation of acquiring early access agreements 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 ensure that a Land Relations Agent (LRA) is 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.



## Kirkwall-Hamilton Pipeline Project Information Session



### Agricultural soils

Enbridge Gas has established and tested measures to preserve the integrity of agricultural soils throughout the construction phase:

- A third-party soils specialist will determine topsoil depth prior to stripping and supervise activities so the proper depth of topsoil is removed and replaced.
- Topsoil will be stripped from the right-of-way and other work areas and stockpiled along the right-of-way. A separation will be maintained between topsoil and subsoil.
- Enbridge Gas will implement a wet soil shutdown protocol on agricultural lands to minimize soil structure damage.
- The subsoil on the stripped portion of the right-of-way will be chisel ploughed or sub-soiled during cleanup activities to

alleviate compaction.

- Any agricultural drainage systems impacted by construction will be repaired.
- 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.
- A post-construction cover crop program will be available to landowners.



## Kirkwall-Hamilton Pipeline Project Information Session



### Maintaining agricultural drainage systems

- Landowners will be contacted prior to construction to confirm the location and type of existing drains. Any future drainage plans will also be discussed with the landowner.
- Field tile will be temporarily re-routed during pre-construction activities where required to ensure proper drainage during construction.
- 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.



## Kirkwall-Hamilton Pipeline Project Information Session



### Socio-economic features

The project will be constructed through private business areas, agricultural and residential land, along with land owned by Hydro One and Hamilton Conservation Authority. Land use designations consist of a variety of uses, including agricultural, rural residential and commercial.

Enbridge Gas has extensive experience working in the City of Hamilton on major construction projects, most recently with its Brantford-Kirkwall (2015) and Hamilton-Milton (2016) projects. This project will be constructed to the same standards of care for the local community, working to minimize and mitigate construction impacts.



## Kirkwall-Hamilton Pipeline Project Information Session



### Socio-economic features

#### Potential effects

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

#### Example mitigation measures

- Provide access across the construction area.
- Restrict construction to daylight hours, and adhere to applicable by-laws.
- Develop and implement a Traffic Control Plan.
- Place fencing at appropriate locations for safety.
- Implement a water well monitoring program.

- Making contact information for a designated Enbridge Gas representative available prior to and throughout construction.
- Dust control measures.
- Re-vegetation of cleared areas (seeding/planting).
- Maintain access to properties and work with Landowners during temporary access disruptions.
- Regular community updates via newsletter mail-out during construction, and dedicated project web-page with information available prior to and during construction.
- Timing of construction to limit disturbance with consideration for communities and businesses.



## Kirkwall-Hamilton Pipeline Project Information Session



### Aquatic resources

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

The pipeline crosses 4 known watercourses.

#### Potential effects

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

#### Example mitigation measures

- Conduct surveys of waterbodies.

- Obtain all agency permits and approvals.
- Limit in-channel construction, where possible, and conform to fish timing window guidelines.
- For in-channel construction, protect aquatic species and manage sedimentation and turbidity.
- Restore and seed areas to establish habitat and reduce erosion.
- Replant riparian vegetation.



## Kirkwall-Hamilton Pipeline Project Information Session



### Cultural heritage resources

During the course of construction, cultural heritage 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.

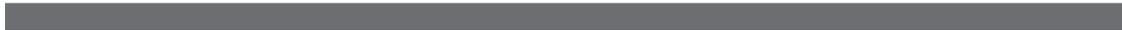
#### Potential effects

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

#### Example mitigation measures

- Archaeological assessment of the construction right-of-way, with review and comment from the Ministry of Tourism, Culture and Sport (MTCS).

- Cultural heritage assessment (for built heritage features and cultural heritage landscapes) of the construction right-of-way, with review and comment from MTCS.
- Reporting of any previously unknown archaeological, paleontological or historical resources uncovered, or suspected of being uncovered, during excavation.



## Kirkwall-Hamilton Pipeline Project Information Session



### Terrestrial resources

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.
- Restore and seed areas to establish habitat and reduce erosion.
- Secure any necessary permits, and follow any conditions of approval.

#### Example mitigation measures

- Conduct surveys (including Species at Risk surveys) in advance of construction to determine opportunities for wildlife habitat to exist.
- Clearly mark the construction area to avoid accidental damage.



## Kirkwall-Hamilton Pipeline Project Information Session

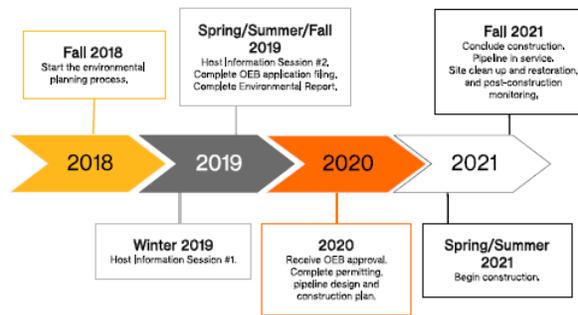


### Next steps

Serving hundreds of communities in Ontario, we consider ourselves strong community partners who believe in and are committed to public consultation.

During the planning stages for this Project we have consulted and will continue to consult with local landowners, Indigenous Communities, government agencies and other interested parties that could be impacted by the Project.

After this Information Session, we intend to pursue the following schedule of activities:



## Kirkwall-Hamilton Pipeline Project Information Session



## Thank you!

On behalf of the Project Team, thank you for attending this Information Session. We appreciate your involvement in the consultation process, and we would like to hear from you.

Please fill out the exit questionnaire. If you have any further comments or questions, please contact:

Michael Candido, Project Manager  
Stantec Consulting Ltd.  
Phone: 519-780-8139  
Email: michael.candido@stantec.com

Enbridge Gas  
Phone: 1-855-381-9138  
Email: Projects@uniongas.com

Or visit our project webpage: [uniongas.com/Kirkwall-Hamilton](http://uniongas.com/Kirkwall-Hamilton)



Attachment 1.1

From: [REDACTED] Sent: Mon 11/02/2019 12:24 PM  
To: [REDACTED]  
Cc: Ken McCordle  
Subject: Union Gas Kirkwall Hamilton Pipeline Project

Message: Hamilton Kirkwall Project Map.pdf (1 MB) HDI Notification Letter.pdf (201 KB)

Good morning [REDACTED]

Hope this finds you well.

Please find attached a letter and map referencing our Kirkwall Hamilton Pipeline Project.

We look forward to speaking with you on this project.

Miigwech, Thank you

[REDACTED]

**Lauren Whitwham**  
Analyst, Indigenous Affairs

ENBRIDGE GAS INC. OPERATING AS UNION GAS  
TEL: 519-667-4100 x 5153545 | CELL: 519-852-3474 | [REDACTED]@uniongas.com  
109 Commissioners Road West, London, ON N6A4P1  
uniongas.com  
Integrity. Safety. Respect.



Haudenosaunee Development Institute  
P.O Box 714  
Ohsweken, Ontario  
N0A 1M0

February 11, 2019

Re: Union Gas Kirkwall-Hamilton Pipeline Project

Dear [REDACTED]

Union Gas Limited has been bringing clean, reliable, and affordable natural gas service for more than a century to over 400 communities across Ontario.

To increase existing capacity and accommodate additional demand for natural gas, Union Gas is proposing to construct a new NPS 48-inch diameter natural gas pipeline. The proposed pipeline is planned to be in service as early as fall 2021 and will be located within the municipality of the City of Hamilton. The proposed pipeline will generally parallel three existing Union Gas pipelines between the existing Kirkwall valve site and the Hamilton gate station. The length of the pipeline will be determined by the final route chosen but will be approximately 10-14km.

We would like to consult with your community on this proposed project. We are interested in your community's feedback, including any suggestions or proposals on mitigating, avoiding or accommodating any potential impacts to Aboriginal or treaty rights.

Union Gas has been delegated the procedural aspects for consultation by the Ministry of Energy on behalf of Ontario. Ministry officials are also available should you wish to contact them directly with any questions or concerns. Please contact:

Raina Crasto  
Policy Advisor, Indigenous Energy Policy  
Ministry of Energy, Northern Development and Mines  
(416) 326-4571  
Raina.crasto@ontario.ca

We would like to set up a meeting to discuss our project with you and provide you with an opportunity to express any questions or concerns you have. Please feel free to contact me at [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com) or 519-365-0584 so we can set up a time to meet.

Miigwech,

Ken McCorkle  
Manager, Indigenous Affairs  
[kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
519-365-0584

PO Box 2001, 50 Keil Drive North, Chatham, Ontario N7M5M1 [www.uniongas.com](http://www.uniongas.com)  
Union Gas Limited

From: [REDACTED] Sent: Wed 13/02/2019 11:01 AM  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: [External] Re: Union Gas Kirkwall Hamilton Pipeline Project

Good morning [REDACTED]

Thanks for the notice on the upcoming Enbridge/Union Gas project,

Please direct future project information directly to HDI: [hdi2@bellnet.ca](mailto:hdi2@bellnet.ca)

Thanks,

[REDACTED]

Monitoring Program Coordinator

Haudenosaunee Development Institute (HDI)

Haudenosaunee Confederacy Chiefs Council (HCCC)

Six Nations of the Grand River Territory

O: [519-445-4222](tel:519-445-4222)

M: [519-761-1794](tel:519-761-1794)

<https://www.haudenosauneeconfederacy.com/>

Attachment 1.2



February 12, 2019

Haudenosaunee Development Institute (HDI)  
16 Sunrise Court, Suite 407  
Ohsweken, ON N0A 1M0

SENT VIA EMAIL

Attention: Consultation Coordinator Karl Hill

Dear [REDACTED]

Reference: Enbridge Gas Inc. Pipeline Project – Notification of  
Commencement and Information Session: Kirkwall-Hamilton  
Pipeline Project

To increase existing capacity and accommodate additional demand for natural gas, Enbridge Gas Inc. is proposing to construct a new 48-inch diameter natural gas pipeline located within the City of Hamilton. (Note: As of Jan. 1, 2019, Union Gas and Enbridge Gas Distribution have amalgamated into one utility with the legal name Enbridge Gas Inc.)

The proposed project will be constructed between Enbridge Gas' existing Kirkwall valve site, located northeast of the intersection of Safari Road and Valens Road and Enbridge Gas' existing Hamilton valve site, located east of Highway 6 and north of Carlisle Road, generally paralleling three existing Enbridge Gas pipelines. The length of the proposed pipeline will be determined by the final route chosen after input from the community but will be approximately 10-14km. If approved, construction of the pipeline could begin as early as spring/summer 2021 and be complete by the end of 2021.

As an integral part of this project, Enbridge Gas has hired Stantec Consulting Ltd. to undertake an environmental study of the construction and operation of the proposed pipeline and related facilities. The environmental study will fulfill the requirements of the Ontario Energy Board's (OEB) *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (2016)*. The environmental study process includes consultation and engagement with landowners, municipalities, agencies, Indigenous communities, and other interested parties through notices, mailouts, meetings, and Information Sessions.

An Environmental Report, summarizing the results of the environmental study, will accompany Enbridge Gas' application to the OEB. The Environmental Report for the proposed project is anticipated to be completed and submitted to the OEB as early as the summer of 2019 as part of the overall project application.

An Information Session is planned to seek feedback on the project in general, the alternative pipeline routes and the preliminary preferred pipeline route. The Information Session will be conducted as a drop-in, and representatives from both Enbridge Gas and Stantec Consulting Ltd. will be available to answer questions.

**Wednesday, Feb. 27, 2019**  
5 p.m. to 8 p.m.  
Carlisle Arena  
1496 Centre Road  
Carlisle, ON L0R 1H2

Haudenosaunee Development Institute (HDI) is invited to attend the Information Session and provide comments regarding the proposed project. Specifically, Stantec is seeking information

P.O. Box 2001, 50 Keil Drive North, Chatham, ON, N7M 5M1 [www.uniongas.com](http://www.uniongas.com)  
Enbridge Gas

about any adverse impacts that the proposed project may have on constitutionally protected aboriginal or treaty rights and any measures for mitigating those adverse impacts. Stantec is also seeking background environmental and socio-economic information that may be useful in compiling an inventory.

If you cannot attend the Information Session but would like to learn more about the project, please contact the undersigned.

Additional project information is available at: [uniongas.com/projects](http://uniongas.com/projects)

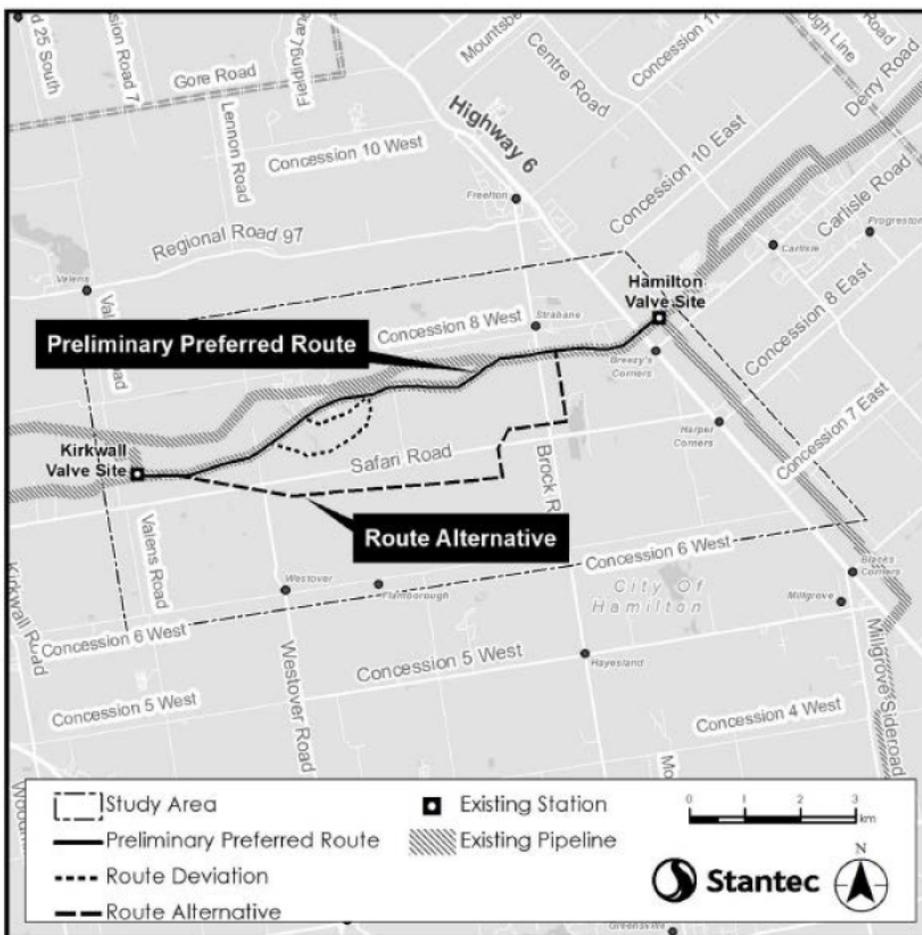
Miigwech,

*Ken McCorkle*

**Ken McCorkle**  
Manager, Indigenous Affairs Enbridge Gas Inc.  
50 Keil Drive North Chatham, ON N7M 5M1  
Phone: 519-436-4600 ext. 5002243  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)

Attachment: Map of Alternative Routes

c. [REDACTED] Stantec Consulting Ltd.



Attachment 1.3

**From:** [Ken McCorkle](#)  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** FW: Union Gas Kirkwall Hamilton Pipeline Project/ Branchton Project  
**Date:** March-06-19 10:03:51 AM  
**Attachments:** [Hamilton Kirkwall Project Map.pdf](#)  
[HDI Notification Letter.pdf](#)

---

Hello HDI Members:

I am doing a follow up to the previous notification regarding the Kirkwall-Hamilton Project and I can also address the Branchton Project. One of the take aways from a meeting with [REDACTED] yesterday was to request a consultation with your leadership regarding the above noted project. If you could let me know a couple of available dates to meet I can confirm with our schedule. At this point I know I am not available from March 21<sup>st</sup> until April 3<sup>rd</sup>. Perhaps an offering of a couple of dates in mid-April would work? I will await your response!

Miigwech,  
Ken

**From:** [REDACTED]  
**Sent:** March-07-19 9:13 AM  
**To:** Ken McCorkle  
**Subject:** [External] Re: Union Gas Kirkwall Hamilton Pipeline Project/ Branchton Project

Hello Ken

The dates we have available for mid April are: Wed 10 or Thurs 11 at 10 am or 1pm  
Wed 17 or Thurs 18 at 10am or 1pm

Please let us know if these dates work for you and also how many will be joining you for the meeting.

Thank you  
[REDACTED]

From: Ken McCorkle  
To: [REDACTED]  
Cc:  
Subject: RE: [External] Re: Union Gas Kirkwall Hamilton Pipeline Project/ Branchton Project

Sent: Sat 09/03/2019 2:56 PM

Hello [REDACTED]

Thank you for your response! I will confirm one of the dates you forwarded as soon as the Environmental Planner confirms.

Miigwetch,  
Ken

*Ken McCorkle*

Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. :Operating as Union Gas  
Phone: 519-438-4600 Ext. 5002243  
Cell: 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
We can't change the past, but we can influence our future

Attachment 1.4

On Mar 14, 2019, at 8:26 PM, Ken McCorkle <[KMcCorkle@uniongas.com](mailto:KMcCorkle@uniongas.com)> wrote:

Hello [REDACTED]

Our Environmental Planner has confirmed that he is available on Thursday April 18 at 1PM for a presentation on the Kirkwall-Hamilton project. Could you please confirm receipt of this and will see you on the 18th at 1PM.

Miigwech  
Ken

---

**From:** Misty Hill [<mailto:hdi2@bellnet.ca>]  
**Sent:** March-15-19 9:38 AM  
**To:** Ken McCorkle  
**Subject:** Re: [External] Re: Union Gas Kirkwall Hamilton Pipeline Project/ Branchton Project

Hello Ken

Ok we will confirm for April 18 at 1pm. Can you please let me know how many of you will be attending the meeting.

Thanks  
[REDACTED]

On 15/03/2019, at 10:02 PM, Ken McCorkle <[KMcCorkle@uniongas.com](mailto:KMcCorkle@uniongas.com)> wrote:

Attachment 1.5

**From:** Ken McCorkle  
**Sent:** July-17-19 1:34 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Kirkwall-Hamilton Project!

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hello [REDACTED]

Thank you [REDACTED] for meeting with me last week as I really appreciated the discussion we had. You asked about the Kirkwall-Hamilton project and if any Archeology and or Environmental work would be started this year (2019). I spoke with our Environmental Planner and who stated that he would like to get started this fall on some of the field surveys. He assured me that you would be contacted for monitors of the work once he has some timelines defined. This work will be subject to weather and land access moving ahead. I believe it will be Stantec that will contact you for this work which could start in September.

Again thank you for your time and if there are any concerns regarding this project please let me know at your earliest convenience.

Miiigwech,  
Ken

*Ken McCorkle*

Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. :Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell; 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)

We can't change the past, but we can influence our future

Attachment 1.6

**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [Ken McCorkle](#); [REDACTED]  
**Subject:** [External] Enbridge Gas Inc. - Kirkwall-Hamilton Pipeline - Archaeology and Natural Heritage  
**Date:** August-29-19 9:50:31 AM

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Good Morning [REDACTED]

Further to the notice of commencement provided in February 2019, Enbridge Gas Inc. (Enbridge Gas) is proposing to construct a new 48-inch diameter natural gas pipeline located within the City of Hamilton. The proposed project will be constructed between Enbridge Gas' existing Kirkwall valve site, located northeast of the intersection of Safari Road and Valens Road and Enbridge Gas' existing Hamilton valve site, located east of Highway 6 and north of Carlisle Road, generally paralleling three existing Enbridge Gas pipelines. Construction of the pipeline could begin as early as spring/summer 2021 and be complete by the end of 2021.

To support the project, Stantec Consulting Ltd. (Stantec) will be initiating a Stage 2 archaeological assessment to identify archaeological resources which may be impacted by the construction and operation of the proposed pipeline. Stantec will also be initiating natural heritage studies to support the project. Dependent on weather conditions, it is anticipated that the archaeological survey work and natural heritage studies may begin as early as September 2019. It is anticipated that Stage 2 assessment will continue in 2020 once conditions are adequate for survey. We welcome the opportunity to include a member of your community on the archaeological survey team and the natural heritage survey team. If a member wishes to participate, please let us know at your earliest convenience so that we can work through the logistics of a contract. [REDACTED] will be leading the archaeological surveys for the project, and will be your point-of-contact for any archaeological assessment details. [REDACTED] will be leading the natural heritage surveys for the project, and will be your point-of-contact for any natural heritage survey details. Once an agreement has been reached, Stantec will reach out with further details regarding a meeting time, place, and required personal protective equipment for the archaeological and natural heritage surveys.

On behalf of Enbridge Gas and Stantec, we look forward to working with you on this project.

Looking forward to hearing from you!  
Thanks,

[REDACTED]  
Associate, Senior Archaeologist  
Environmental Services

Direct: 519-675-6640  
Cell: 226-268-7196  
Stantec  
600-171 Queens Avenue

*Ken McCorkle*

Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. :Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell; 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
We can't change the past, but we can influence our future

**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [Ken McCorkle](#); [REDACTED]  
**Subject:** [External] RE: Enbridge Gas Inc. - Kirkwall-Hamilton Pipeline - Archaeology and Natural Heritage  
**Date:** September-10-19 3:20:53 PM

---

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Good Afternoon [REDACTED]

I am following up on the invitation to participate in the archaeological and natural heritage field work associated with Enbridge's Kirkwall-Hamilton Pipeline as noted below. Please let me know if participation in this project is desired and we can start working on an agreement together.

Thanks,  
[REDACTED]

Attachment 2.1

From: [REDACTED] Sent: Mon 11/02/2019 12:20 PM  
To: [REDACTED]@mncfn.ca; [REDACTED]@mncfn.ca; [REDACTED]@mncfn.ca  
Cc: Ken McCordie  
Subject: Union Gas Kirkwall Hamilton Pipeline Project

Message: Hamilton Kirkwall Project Map.pdf (1 MB) Mississaugas of the Credit First Nation Notification Letter.pdf (202 KB)

Good morning Chief Laforme, [REDACTED]

Hope this finds you well.

Please find attached a letter and map referencing our Kirkwall Hamilton Pipeline Project.

We look forward to speaking with you on this project.

Miigwech, Thank you

[REDACTED]

[REDACTED]

Analyst, Indigenous Affairs

ENBRIDGE GAS INC. OPERATING AS UNION GAS  
TEL: 519-667-4100 x 5153545 | CELL: 519-852-3474 | [REDACTED]@uniongas.com  
109 Commissioners Road West, London, ON N6A4P1  
[uniongas.com](http://uniongas.com)  
Integrity. Safety. Respect.



Chief Stacey Laforme  
Mississaugas of the Credit First Nation  
2789 Mississauga Road R.R. #6  
Hagersville, Ontario  
N0A 1H0

February 11, 2019

**Re: Union Gas Kirkwall-Hamilton Pipeline Project**

Dear Chief Laforme,

Union Gas Limited has been bringing clean, reliable, and affordable natural gas service for more than a century to over 400 communities across Ontario.

To increase existing capacity and accommodate additional demand for natural gas, Union Gas is proposing to construct a new NPS 48-inch diameter natural gas pipeline. The proposed pipeline is planned to be in service as early as fall 2021 and will be located within the municipality of the City of Hamilton. The proposed pipeline will generally parallel three existing Union Gas pipelines between the existing Kirkwall valve site and the Hamilton gate station. The length of the pipeline will be determined by the final route chosen but will be approximately 10-14km.

We would like to consult with your community on this proposed project. We are interested in your community's feedback, including any suggestions or proposals on mitigating, avoiding or accommodating any potential impacts to Aboriginal or treaty rights.

Union Gas has been delegated the procedural aspects for consultation by the Ministry of Energy on behalf of Ontario. Ministry officials are also available should you wish to contact them directly with any questions or concerns. Please contact:

Raina Crasto  
Policy Advisor, Indigenous Energy Policy  
Ministry of Energy, Northern Development and Mines  
(416) 326-4571  
Raina.crasto@ontario.ca

We would like to set up a meeting to discuss our project with you and provide you with an opportunity to express any questions or concerns you have. Please feel free to contact me at [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com) or 519-365-0584 so we can set up a time to meet.

Miigwech,

Ken McCorkle  
Manager, Indigenous Affairs

From: [REDACTED]  
To: [REDACTED] (Ken McCorkle)  
Cc:  
Subject: [External] Kirowall Hamilton

Sent: Tue 12/02/2019 10:11 AM

Hi [REDACTED] and Ken,

Thank you for the notice on the new pipeline. MCFN would like to schedule a meeting to discuss your project and our expectations.

Miigwetch,

[REDACTED]  
Consultation Manager  
Department of Consultation and Accommodation  
Mississaugas of the Credit First Nation  
4065 Hwy 6 North  
Hagersville, On.  
N0A 1H0  
Office - 905-768-4260  
Cell - 289-527-6580  
<http://www.mncfn.ca>  
[Facebook: Mississauga of the Credit First Nation](#)

Attachment 2.2



February 12, 2019

Mississaugas of the Credit First Nation  
2789 Mississauga Road R.R. #6  
Hagersville, ON N0A 1H0  
Barbara.Smoke@mncfn.ca

SENT VIA EMAIL

Attention: Chief Stacy Laforme

Dear Chief Laforme,

Reference: Enbridge Gas Inc. Pipeline Project – Notification of  
Commencement and Information Session: Kirkwall-Hamilton  
Pipeline Project

To increase existing capacity and accommodate additional demand for natural gas, Enbridge Gas Inc. is proposing to construct a new 48-inch diameter natural gas pipeline located within the City of Hamilton. (Note: As of Jan. 1, 2019, Union Gas and Enbridge Gas Distribution have amalgamated into one utility with the legal name Enbridge Gas Inc.)

The proposed project will be constructed between Enbridge Gas' existing Kirkwall valve site, located northeast of the intersection of Safari Road and Valens Road and Enbridge Gas' existing Hamilton valve site, located east of Highway 6 and north of Carlisle Road, generally paralleling three existing Enbridge Gas pipelines. The length of the proposed pipeline will be determined by the final route chosen after input from the community but will be approximately 10-14km. If approved, construction of the pipeline could begin as early as spring/summer 2021 and be complete by the end of 2021.

As an integral part of this project, Enbridge Gas has hired Stantec Consulting Ltd. to undertake an environmental study of the construction and operation of the proposed pipeline and related facilities. The environmental study will fulfill the requirements of the Ontario Energy Board's (OEB) *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (2016)*. The environmental study process includes consultation and engagement with landowners, municipalities, agencies, Indigenous communities, and other interested parties through notices, mailouts, meetings, and Information Sessions.

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An Information Session is planned to seek feedback on the project in general, the alternative pipeline routes and the preliminary preferred pipeline route. The Information Session will be conducted as a drop-in, and representatives from both Enbridge Gas and Stantec Consulting Ltd. will be available to answer questions.

Wednesday, Feb. 27, 2019  
5 p.m. to 8 p.m.  
Carlisle Arena  
1496 Centre Road  
Carlisle, ON L0R 1H2

Mississaugas of the Credit First Nation is invited to attend the Information Session and provide comments regarding the proposed project. Specifically, Stantec is seeking information about

P.O. Box 2001, 50 Keil Drive North, Chatham, ON, N7M 5M1 [www.uniongas.com](http://www.uniongas.com)  
Enbridge Gas

any adverse impacts that the proposed project may have on constitutionally protected aboriginal or treaty rights and any measures for mitigating those adverse impacts. Stantec is also seeking background environmental and socio-economic information that may be useful in compiling an inventory.

If you cannot attend the Information Session but would like to learn more about the project, please contact the undersigned.

Additional project information is available at: [uniongas.com/projects](http://uniongas.com/projects)

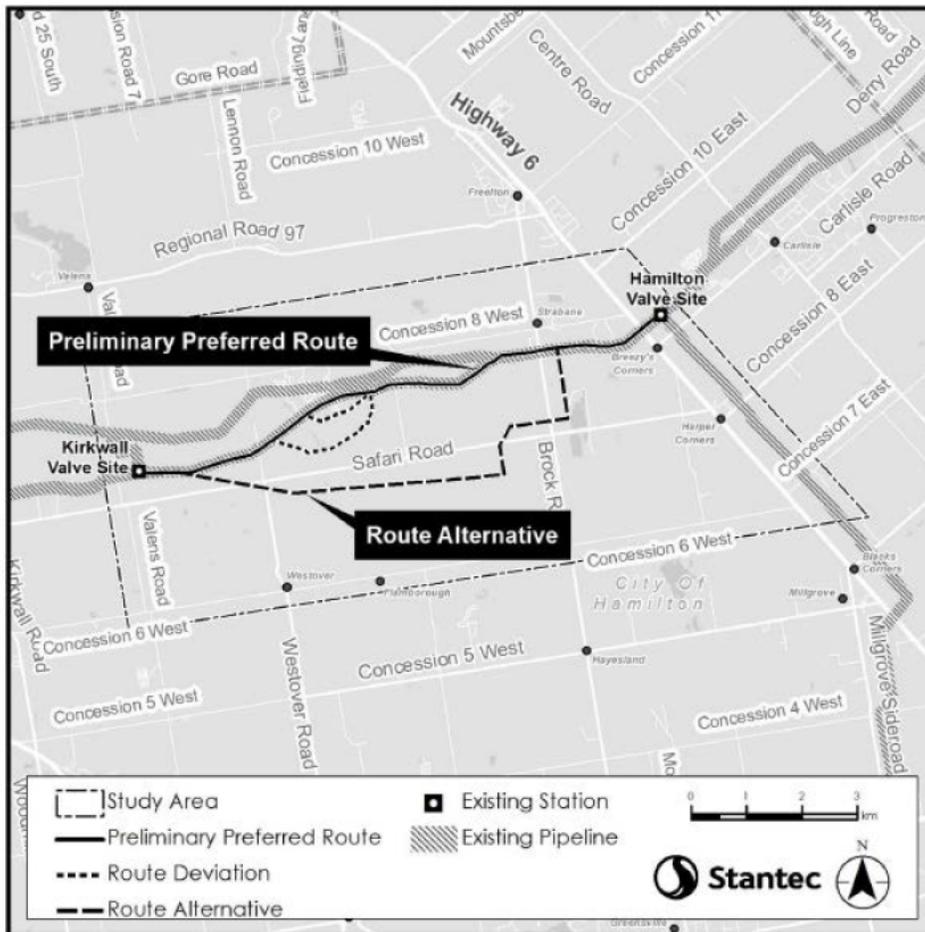
Miigwech,

*Ken McCorkle*

**Ken McCorkle**  
Manager, Indigenous Affairs Enbridge Gas Inc.  
50 Keil Drive North Chatham, ON N7M 5M1  
Phone: 519-436-4600 ext. 5002243  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)

Attachment: Map of Alternative Routes

c. [REDACTED] Stantec Consulting Ltd.



Attachment 2.3

**From:** [Ken McCorkle](#)  
**To:** [REDACTED]  
**Cc:**  
**Subject:** Gathering on Friday Feb 22/19  
**Date:** February-25-19 3:29:50 PM

---

Hello [REDACTED]

I just want to say thank you for meeting with me this past Friday. It was a good time to catch up and also have a tour of your new facility.

As mentioned on Friday we can set up a meeting time to consult on the Kirkwall-Hamilton project that you have been notified on.

I also wanted to let [REDACTED] know that I have requested a copy of the Stage One report of the Kirkwall-Hamilton project for her review. In speaking with [REDACTED] (Stantec) he hopes to complete this later this week or early next. I will forward you a copy then.

Looking forward to speaking with you again!

Miigwetch,  
Ken

Attachment 2.4

From: Ken McCorkle  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: RE: Kirkwall Hamilton  
Sent: Wed 08/05/2019 11:52 AM

Hello [REDACTED]  
I trust this finds you well  
Would you a couple of dates you could forward to set up a consultation for this project?

Miigwech,  
Ken

*Ken McCorkle*  
Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. :Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell, 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
We can't change the past, but we can influence our future

From: [REDACTED]@mncfn.ca  
To: Ken McCorkle  
Cc: [REDACTED]  
Subject: [External] RE: Kirkwall Hamilton  
Sent: Wed 08/05/2019 2:54 PM

Good Afternoon Ken,  
How does the afternoon of June 11<sup>th</sup> or the Morning of June 18<sup>th</sup> look for you?

Miigwetch,

[REDACTED]  
Consultation Manager  
Department of Consultation and Accommodation  
Mississaugas of the Credit First Nation  
4065 Hwy 6 North  
Hagersville, On.  
N0A 1H0  
Office - 905-768-4260  
Cell - 289-527-6580  
<http://www.mncfn.ca>  
Facebook: [Mississauga of the Credit First Nation](#)

From: Ken McCorkle  
To: [REDACTED]  
Cc:  
Subject: RE: Kirkwall Hamilton

Sent: Thu 09/05/2019 9:01 AM

Hello [REDACTED]  
Thank you for your quick response!  
The afternoon of the 11<sup>th</sup> will work for us. There will be myself along with [REDACTED] our Environmental planner who will speak to the project.  
Does 1PM work or later better? Whatever works for you? I will await your response so we can put it in our calendars.

Miigwech,  
Ken

*Ken McCorkle*  
Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. :Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell: 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
We can't change the past, but we can influence our future

Attachment 2.5

**From:** Ken McCorkle [<mailto:KMccorkle@uniongas.com>]  
**Sent:** Tuesday, May 28, 2019 4:47 PM  
**To:** [REDACTED] <[\[REDACTED\]@mncfn.ca](mailto:[REDACTED]@mncfn.ca)>; [REDACTED] <[\[REDACTED\]@mncfn.ca](mailto:[REDACTED]@mncfn.ca)>  
**Cc:** [REDACTED] <[\[REDACTED\]@uniongas.com](mailto:[REDACTED]@uniongas.com)>  
**Subject:** Stage One Arch report for the Kirkwall-Hamilton project.

Hello [REDACTED]  
I trust this finds you and your families well!  
Please see the attached Stage One Archeology report that you requested from our last meeting. This is for the Kirkwall-Hamilton project that we will be consulting on with you on Tuesday June 11<sup>th</sup>.  
Looking forward to meeting and speaking with you again!

Miigwech,  
Ken

*Ken McCorkle*  
Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. :Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell: 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
We can't change the past, but we can influence our future

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**From:** [REDACTED] <[\[REDACTED\]@mncfn.ca](mailto:[REDACTED]@mncfn.ca)>  
**To:** Ken McCorkle  
**Cc:** [REDACTED]  
**Subject:** [External] RE: Stage One Arch report for the Kirkwall-Hamilton project.

Sent: Wed 29/05/2019 9:01 AM

Good morning Ken,  
  
Thank you for distributing. We will review and let you know if we have any comments or questions.  
  
Please let us know when you plan to begin the Stage 2 fieldwork and kindly remember that FLRs are required during the assessment.

Sincerely,  
[REDACTED]

[REDACTED]  
Archaeological Operations Supervisor  
Department of Consultation and Accommodation (DOCA)  
Mississaugas of the Credit First Nation (MCFN)  
4065 Highway 6 North, Hagersville, ON N0A 1H0  
P: 905-768-4260 | M: 289-527-2763  
<http://www.mncfn.ca>

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Attachment 2.6

**From:** [REDACTED]  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** [External] Enbridge Gas Inc. - Kirkwall-Hamilton Pipeline - Archaeology and Natural Heritage  
**Date:** August-29-19 9:50:32 AM

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Good Morning [REDACTED]

Further to the notice of commencement provided in February 2019, Enbridge Gas Inc. (Enbridge Gas) is proposing to construct a new 48-inch diameter natural gas pipeline located within the City of Hamilton. The proposed project will be constructed between Enbridge Gas' existing Kirkwall valve site, located northeast of the intersection of Safari Road and Valens Road and Enbridge Gas' existing Hamilton valve site, located east of Highway 6 and north of Carlisle Road, generally paralleling three existing Enbridge Gas pipelines. Construction of the pipeline could begin as early as spring/summer 2021 and be complete by the end of 2021.

To support the project, Stantec Consulting Ltd. (Stantec) will be initiating a Stage 2 archaeological assessment to identify archaeological resources which may be impacted by the construction and operation of the proposed pipeline. Stantec will also be initiating natural heritage studies to support the project. Dependent on weather conditions, it is anticipated that the archaeological survey work and natural heritage studies may begin as early as September 2019. It is anticipated that Stage 2 assessment will continue in 2020 once conditions are adequate for survey. We welcome the opportunity to include a member of your community on the archaeological survey team and the natural heritage survey team. If a member wishes to participate, please let us know at your earliest convenience so that we can work through the logistics of a contract. [REDACTED] will be leading the archaeological surveys for the project, and will be your point-of-contact for any archaeological assessment details. [REDACTED] will be leading the natural heritage surveys for the project, and will be your point-of-contact for any natural heritage survey details. Once an agreement has been reached, Stantec will reach out with further details regarding a meeting time, place, and required personal protective equipment for the archaeological and natural heritage surveys.

On behalf of Enbridge Gas and Stantec, we look forward to working with you on this project.

Looking forward to hearing from you!

Thanks,

[REDACTED]  
Associate, Senior Archaeologist  
Environmental Services

Direct: 519-675-6640  
Cell: 226-268-7196  
Stantec  
600-171 Queens Avenue

*Ken McCorkle*

Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. :Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell; 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)

We can't change the past, but we can influence our future

Attachment 2.7

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**From:** DOCA Admin [mailto:DOCA.Admin@mncfn.ca]  
**Sent:** September-17-19 9:03 AM  
**To:** Ken McCorkle  
**Cc:** [REDACTED]@oktlaw.com; [REDACTED]@stantec.com; [REDACTED]@ontario.ca;  
**Subject:** [External] Concerns of MCFN re: Kirkwall to Hamilton Natural Gas Pipeline Project

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Good morning Mr. McCorkle,

Please see the attached for your review from [REDACTED] Director, MCFN-DOCA.

Thank you!

[REDACTED]  
**Administrative Support**  
**Mississaugas of the Credit First Nation (MCFN)**  
**Department of Consultation & Accommodation (DOCA)**  
**4065 Highway 6, Hagersville, ON N0A 1H0**  
**Ph: (905) 768 – 4260**



September 16, 2019

**SENT VIA E-MAIL**

Ken McCorkle (Enbridge Gas Inc., formerly Union Gas)  
E-mail: KMcCorkle@uniongas.com

**Re: Concerns of Mississaugas of the Credit First Nation regarding the Kirkwall to Hamilton Natural Gas Pipeline Project**

I write you to note Mississaugas of the Credit First Nation's ("MCFN") concerns with the natural gas pipeline project from Kirkwall to Hamilton undertaken by Enbridge Gas Inc.

On August 29, 2019, [REDACTED] of Stantec Consulting Inc. notified Department of Consultation and Accommodation ("DOCA") about the upcoming fieldwork. DOCA then emailed Ken McCorkle of Enbridge, stating consultation should be directly between MCFN and Enbridge. DOCA also included a Field Liaison Representative ("FLR") agreement in the email, which is our standard practice to ensure that there is clarity regarding MFCN involvement in a project, and to ensure MCFN's rights and interests are protected. Enbridge did not respond; instead [REDACTED] from Stantec replied, indicating Stantec was responsible for arranging MCFN's participation.

MCFN's position is that the proponent, Enbridge, should directly consult with MCFN, while understanding the proponent may work with various consultants. Our position is that the lack of direct consultation undermines the rights of MCFN to its archaeological resources.

MCFN's Territory spans from Long Point on Lake Erie to the Niagara River, then down the River to Lake Ontario, northward along the shore of the Lake to the River Rouge east of Toronto then up that river to the dividing ridges to the head waters of the River Thames then southward to Long Point, the place of the beginning (the "Territory"). This Territory encompasses the lands and waters that were used and occupied by MCFN's Ancestors. They have relied (and continue to rely) on and use these lands, waters and ecosystems for a variety of livelihood, harvesting, ceremonial, and spiritual purposes. The Kirkwall-Hamilton project passes through MCFN territory.



**DEPARTMENT OF CONSULTATION AND ACCOMMODATION**  
Mississaugas of the Credit First Nation  
4065 Hwy #6, Hagersville, Ontario N0A 1H0



Phone: (905) 768-4260





The MCFN has a stewardship responsibility over its Territory, and asserts an Aboriginal right to protect the integrity of archaeological resources, including cultural materials and human burials, within its Territory. The *United Nations Declaration on the Rights of Indigenous Peoples* explicitly recognizes this right at Art. 11(1), where the rights of Indigenous peoples to “maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites [and] artefacts”. Similarly, Art.12(1) recognizes the rights of Indigenous peoples to “the use and control of their ceremonial objects; and the right to the repatriation of their human remains”.

The courts have repeatedly recognized that early engagement with First Nations before plans are set in stone is critical to ensure *meaningful* consultation. Meaningful consultation is consultation that ensures First Nations are able to express their interests and concerns, and to ensure that their representations are seriously considered and demonstrably addressed by the proposed plan of action.<sup>1</sup>

Impacts on MCFN’s rights and interests are distinct from general environmental impacts and must therefore be assessed and addressed separately. A general process which does not allow for the specific consideration of impacts on First Nation rights and interests will not fulfill the duty to consult, nor will mitigation or accommodation measures that are not directly tied to impacts on the First Nation.<sup>2</sup>

If the regulatory process does not allow for meaningful consultation and accommodation, then the Crown (or the proponent) must fill those gaps outside the regulatory scheme or else the duty to consult and accommodate will not be met and the project cannot proceed. Accommodation means ensuring that a First Nation’s constitutionally protected Aboriginal and treaty rights are considered as rights, not as an afterthought to the assessment of environmental concerns.<sup>3</sup>

It is our experience that in large projects such as this one if we are not directly engaged with the proponent, then if an issue that arises that is outside the remit of the particular consultant the response is “oh well, that just can’t be dealt with”. It is critical for MCFN to have a direct line of communication and direct relationship with Enbridge to ensure that MCFN’s concerns will be adequately addressed.

Further, we also find it disrespectful that Enbridge can’t even be bothered to communicate with MCFN directly to explain its position. Meaningful consultation cannot be managed as though First Nations are dissatisfied customers to a call centre.

<sup>1</sup> *Halfway River First Nation v. British Columbia (Ministry of Forests)*, 1999 BCCA 470 (CanLII), <<http://canlii.ca/t/5216>>, at para 160.

<sup>2</sup> *Clyde River (Hamlet) v Petroleum Geo-Services Inc.*, [2017] 1 SCR 1069, 2017 SCC 40 (CanLII), <<http://canlii.ca/t/h51gv>> at para 51.

<sup>3</sup> *Clyde River* at para 22.





#### *Involvement of MCFN and use of standards and guidelines*

It is important that MCFN be involved in both the scoping a project evaluation (including the scoping of any proponent studies) and in the monitoring of any fieldwork from the very beginning, so as to allow MCFN to provide input about MCFN's concerns, and what our requirements for proper archaeological monitoring might be. Given that it is doubtful the proponent's experts are familiar (or even looking for) impacts on MCFN rights, lack of MCFN involvement at an early stage is likely to result in an improper assessment of impacts.

MCFN's *Standards and Guidelines for Archaeology* ("MCFN's S&G") are designed specifically to complement the Ministry of Tourism and Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* ("MCTS Standards"). The MCFN S&G's in no way conflict with the MCTS Standards, they simply provide critical background information and guidance about conducting archaeology in MCFN Territory.

Stantec removed a clause from our draft FLR agreement indicating that Enbridge and the Stantec would follow the MCFN S&G's. On a project of this scale, it is essential that the archaeological assessments are conducted appropriately. It is therefore very concerning that at the outset the proponent (through its consultant) is refusing to consult information that is critical to understanding MCFN's concerns.

MCFN's DOCA seeks to work together with project proponents and their archaeological consultants to ensure that archaeological work is done in a respectful way, and that any archaeological resources found through an investigation are dealt with appropriately. For cultural materials and human remains, this may include ceremonies required by Anishnaabe law. DOCA deploys FLRs to be boots on the ground so that field work by a proponent and their consultants and contractors are carried out with appropriate care, thoroughness, and respect. In the context of MCFN's Territory, where so much archaeological material has already been destroyed or lost, MCFN's monitoring of field work is of utmost importance to ensure that the trail of destruction and desecration stops now.

There are many examples where, had it not been for the presence and involvement of MCFN's FLRs, significant archeological resources would have been destroyed. For example, we have witnessed a number of incidents where archaeologists have used improper plowing methods to turn over soil for inspection. If done improperly, this could lead to the incorrect assessment that there are not artifacts present, when in fact there may be significant numbers or artifacts. If MCFN monitors are not onsite to ensure proper procedures are followed, then the evidence is destroyed when a project proceeds. The MCFN S&G's are also key because they assist in knowing where and what to look for.





It is disappointing that the proponents approach seems to be to try to simply go through the motions of consultation without taking reasonable and concrete steps toward meaningful consultation and accommodation. We look forward to hearing from Enbridge how we can move forward in a constructive way.

Respectfully,

[Redacted signature block]

Mississaugas of the Credit First Nation  
Department of Consultation and Accommodation (DOCA)

c.c. [Redacted] Archaeological Operations Supervisor, DOCA  
[Redacted] Consultation Manager, DOCA  
[Redacted] OKT LLP  
[Redacted] (Stantec Inc.), Parker.Dickson@stantec.com  
[Redacted] Ministry of Energy, Northern Development and Mines, Emma.Sharkey@Ontario.ca.



**DEPARTMENT OF CONSULTATION AND ACCOMMODATION**  
Mississaugas of the Credit First Nation  
4065 Hwy #6, Hagersville, Ontario N0A 1H0



Phone: (905) 768-4260



**From:** [Ken McCorkle](#)

**To:**

**Cc:**

**Subject:** RE: Concerns of MCFN re: Kirkwall to Hamilton Natural Gas Pipeline Project

**Date:** September-18-19 10:16:17 AM

---

Hello Mr. [REDACTED]

Thank you very much for your recent letter regarding your concern with consultation. With the recent merger of Enbridge and Union Gas we have been going thru some structural and staff changes which may have resulted in a miscommunication with your office. I will follow up with your consultation department and ensure that communication is carried forward as we have done in the past.

Again thank you for bringing this issue to my attention.

Miigwech,

Ken

Attachment 2.8

---

**From:** [REDACTED]@mncfn.ca]  
**Sent:** September-20-19 2:05 PM  
**To:** Ken McCorkle  
**Cc:** [REDACTED]  
**Subject:** [External] FLR Participation Agreement

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Hello Ken,

As discussed, please find attached the FLR participation agreement that was used for a Line 11 Integrity Dig. I've sent you this version, as the other ones sent by [REDACTED] were PDF documents.

It was nice to talk to you today.

Kind regards,

[REDACTED]

Attachment 2.9

**From:** [Ken McCorkle](#)  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Monitoring Agreement for the Kirkwall-Hamilton Pipeline project  
**Date:** September-24-19 9:42:14 AM  
**Attachments:** [FINAL MCFN Contract for FLR Participation September 2019.docx](#)

---

Hello [REDACTED]

First let me say thank you for our call the other day. It was really appreciated!

I have enclosed the monitoring agreement that we spoke of. I have changed the information that was required. Please note point 37 on the agreement. I changed the date to Dec of 2020 as this project will start this year but carry over into the spring of 2020. If you have a concern with that date change please let me know. Looking forward to hearing back from you.

Miigwech,  
Ken

**From:** [REDACTED]  
**To:** [Ken McCorkle](#)  
**Cc:** [REDACTED]  
**Subject:** [External] RE: Monitoring Agreement for the Kirkwall-Hamilton Pipeline project  
**Date:** September-24-19 1:56:35 PM  
**Attachments:** [Partially Signed FLR Agreement \[2019\].pdf](#)

---

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Hi Ken,

Please find attached the FLR participation agreement for your signature. [REDACTED] and I have both signed on our end. We are in agreement with the December 2020 extension.

I did notice that there was no information provided for the environmental consultant. Has this fieldwork already been completed?

Thank you,

**From:** [Ken McCorkle](#)  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: Monitoring Agreement for the Kirkwall-Hamilton Pipeline project  
**Date:** September-25-19 9:18:30 AM

---

Hello [REDACTED]

Thank you for the return signed document. I believe it will be [REDACTED] from Stantec looking after the Environmental portion but I will confirm and inform you. No environmental work has started and you will be invited to participate in this work also. I will get back to you shortly.

Miigwech,  
Ken

Attachment 2.10

---

**From:** [REDACTED]@mncfn.ca]  
**Sent:** October-01-19 10:54 AM  
**To:** Ken McCorkle  
**Cc:** [REDACTED]  
**Subject:** [External] Kirkwall-Hamilton Launch Meeting

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Hi Ken,

I received your voicemail. Unfortunately, October 10<sup>th</sup> does not work for us at DOCA. We would be available on October 11<sup>th</sup> though. Please let us know if that date is suitable.

If [REDACTED] could provide, either in advance or at that meeting, some idea in regards to anticipated scheduling, that would be appreciated – start date, number of crews, size of field crews, division of project fieldwork.

Also, a gentle reminder that we are still waiting on the signed FLR participation agreement.

Thanks,

[REDACTED]

---

**From:** Ken McCorkle [<mailto:KMcCorkle@uniongas.com>]  
**Sent:** Tuesday, October 01, 2019 11:47 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** RE: Kirkwall-Hamilton Launch Meeting

Hello [REDACTED]  
Thank you for your response. [REDACTED] and I can meet with you at your office on Friday Oct 11 at 11AM followed by a lunch if that works for you? Let me know what time is best for you and we will work to that.  
I will forward the signed agreement shortly,

Miigwech,  
Ken

---

**From:** [REDACTED]@mncfn.ca]  
**Sent:** October-09-19 10:16 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** [External] RE: Kirkwall-Hamilton Launch Meeting

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Hi [REDACTED]

Ken from Union Gas/Enbridge and [REDACTED] from Stantec are joining [REDACTED] and I at DOCA at 11am to discuss the project and coordinating fieldwork for it.

Please have [REDACTED] Lead FLR, be in attendance for that meeting, so that he can provide his input on how to seamlessly organize the Stage 2 program from an FLR perspective. He has extensive knowledge in this area, having previously been involved in the Line 10 project.

Thanks,  
[REDACTED]



Attachment 2.11

---

**From:** Ken McCorkle  
**Sent:** October-01-19 11:57 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Monitoring Agreement for the Kirkwall-Hamilton Project

Hello [REDACTED]

Please see the attached signed agreement for the Kirkwall-Hamilton Project as discussed. If there are any questions or concerns do not hesitate to contact me.

Miigwech,  
Ken

**FIELD LIAISON REPRESENTATIVE AGREEMENT**

**between:**

**THE MISSISSAUGAS OF THE CREDIT FIRST NATION (“MCFN”)  
and  
ENBRIDGE GAS INC.  
 (“Enbridge” or the “Proponent”)**

A - Background

1. The purpose of this letter of agreement is to provide the MCFN with capacity assistance for its Field Liaison Representatives (“FLRs”) in connection with the 2019 environmental and/or archaeological assessments required for the Kirkwall-Hamilton Pipeline Project (“The Project”) owned by The Proponent.
2. The Proponent understands that MCFN wishes to send its FLRs to participate in and oversee the fieldwork associated with the Project, and that the FLRs’ mandate will be to ensure that MCFN’s perspectives and priorities are considered and to enable MCFN to provide timely and meaningful comment on the Project. The Proponent, or its designated Consultant(s), will provide relevant draft reports related to the Project assessment(s) to MCFN for review and comment, except for those reports that contain proprietary Enbridge information.
3. The Proponent agrees that archaeological assessments conducted for the Project will comply with the MCFN [formerly MNCFN] *Standards and Guidelines for Archaeology* (published April 2, 2018 and included as Schedule D), (“MCFN Standards”) as long as the MCFN Standards do not fall below the minimum standards set out by the Ministry of Tourism and Culture’s *Standards and Guidelines for Consultant Archaeologists (2011)* (“MTC Standards 2011”). The Parties agree that the Proponent will follow the MTC Standards 2011 in the event the MCFN Standards are in conflict with the MTC Standards 2011.
4. While the Proponent’s participation in this Agreement may be viewed as part of the process of consulting and accommodating MCFN with respect to its Aboriginal and Treaty Rights, it does not necessarily discharge the Crown’s duty to consult and accommodate MCFN. MCFN will consider the results of the fieldwork that is the subject of this Agreement in determining whether it has been sufficiently consulted and accommodated.

B – Fees and Cost Structure

5. The Parties agree that the Proponent, will provide capacity funding to MCFN for each FLR in the amount of \$75.00 per hour for all activities relating to the Project (including but not limited to actual travel time to their home from the Project site, time spent on site, time spent on standby at the request of the Proponent or Consultant, training, etc.).
6. The Parties agree that the Proponent will pay a supervisory fee of 2.5% based on the number of hours charged to the Proponent, to provide MCFN with the capacity to facilitate in-field supervisory technical support for the FLRs.
7. The Parties agree that the Proponent will reimburse the FLRs for reasonable mileage and meals in accordance with current Federal Canada Treasury Board guidelines, over and above the hourly rate of \$75.00 per hour [see Appendix A]. Mileage rates are determined using the MCFN Department of Consultation and Accommodation as the place of departure.
8. The Parties agree that Proponent will provide capacity funding for each FLR in the amount of \$100.00 per hour for any work exceeding eight hours per day and/or forty hours per week. The above noted mileage and meal allowance remains in effect.
9. The Parties agree that Proponent will provide capacity funding for each FLR in the amount of \$100.00 per hour for any work occurring on the following holidays: New Year's Day, Family Day, Good Friday, Victoria Day, Indigenous Solidarity Day (June 21), Canada Day, Civic Holiday, Labour Day, Thanksgiving Day, Remembrance Day, Christmas Day, and Boxing Day. The above noted mileage and meal allowance rates remain in effect.
10. The Parties agree that the Proponent will provide capacity funding for each FLR, or designated MCFN representative in the event that no FLRs are available, in the amount of \$75 per hour for any work occurring during the off-season winter months (January, February, and March inclusive). The above noted mileage and meal allowance rates remains in effect.
11. The Parties agree that FLRs will be paid for a minimum of four hours, plus actual travel time, mileage, and meal allowance rates as noted above, on any day when fieldwork is cancelled while FLRs are en route to the work site or after the FLRs have already arrived.

C – Additional Conditions

12. The Proponent understands that MCFN requires two of its Field Liaison Representatives to be on location whenever fieldwork is taking place within its treaty territory (as set out in Schedule A). The parties acknowledge that parts of the Project takes place within MCFN’s treaty territory and agree that the Proponent shall provide capacity funding for FLR work on the Project for the duration of fieldwork for the Project.

13. Furthermore, additional FLRs are required if the number of field personnel utilized by the consultant exceeds fourteen (14) individuals and the Proponent agrees to provide capacity funding for additional FLRs as required. MCFN requires one additional FLR per five additional field crew, as outlined in the chart below:

<b>Number of Field Personnel</b>	<b>Number of FLRs Required</b>
1 to 14	2
15 to 19	3
20 to 24	4
25 to 29	5
30 to 34	6
35 to 39	7
40+	8+

14. The Parties acknowledge that the FLRs time and travel will be recorded and verified using the ClockShark Time Tracking Software System and that invoicing will be prepared using these records, not those of a third party.

15. If its use is deemed necessary by both Parties in advance, the Proponent agrees to reimburse the FLRs for their use of the 407ETR upon receipt of a copy of the bill. This Agreement will be provided in writing to MCFN’s Archaeological Operations Supervisor.

16. If deemed reasonable by both Parties, the Proponent agrees to cover the cost of overnight accommodation for FLRs participating in environmental and/or archaeological fieldwork at locations which would otherwise require more than 90 minutes of travel time at both the beginning and end of the work day, as determined using the MCFN Department of Consultation and Accommodation as the place of departure. An additional Incidental Allowance fee is required for any work which requires overnight accommodations [see Schedule B]. This agreement will be provided in writing to MCFN’s Archaeological Operations Supervisor.

17. If archaeological resources are encountered at any time during construction or other Project-related activity, all excavation or other activity that could disturb the site shall immediately cease, and the Proponent shall immediately notify MCFN. The Parties shall work collaboratively to minimize impacts and ensure respectful treatment of any archaeological resources in accordance with the practices and values of MCFN as identified by MCFN and the *Funeral, Burial and Cremation Services Act, 2002*, SO 2002, c 33 ("FBCS Act") and its regulations. The Parties agree that the Proponent will follow the FBCS Act and its regulations in the event the MCFN practices and values are in conflict with the MTC Standards 2011.
18. If at any time during construction or archaeological assessment ancestral remains are encountered, the following steps shall be taken:
  - a. The person in charge of the work shall immediately contact the Ministry of Tourism Culture and Sport, the Cemeteries Regulation Unit of the Ontario Ministry of Consumer Relations, MCFN's duly appointed Archaeological Operations Supervisor, the appropriate municipal police, the local coroner, and The Proponent's archaeologist, if applicable;
  - b. All excavation or other activity that could disturb the site shall immediately cease, and the area shall be secured in a manner which protects the site location and prevents public access and trespass.

- Coordination of the FLRs

19. The Parties agree that the FLRs will follow the reasonable instructions of the Proponent and their consultant firm(s) conducting the environmental and/or archaeological work, concerning safety practices, and that the FLRs will attend "tailgate" safety meetings if requested.
20. The contact person for the environmental assessment portion of the fieldwork is [name of contact person #1] from [name of consultant]. Contact information for this person is as follows:  
[insert contact information here] 
21. The contact person for the archaeological assessment portion of the fieldwork is Parker Dickson from Stantec Consulting Ltd. Contact information for this person is as follows:

Parker Dickson  
Email: Parker.Dickson@stantec.com

22. The Parties agree that the contact person for the consultant firm(s) will coordinate site meeting locations and times through MCFN's duly appointed Archaeological Operations Supervisor or, when necessary, directly with the FLRs themselves. Contact information for the Archaeological Operations Supervisor is as follows:

██████████  
Telephone: 905-768-4260

Cell: 289-527-2763

██████████@mcfn.ca

#### E - Status of the FLRs

23. The FLRs selected by MCFN have appropriate qualifications for the work required, for example, training in environmental and/or archaeological monitoring, and experience in bridging Indigenous perspectives with Western approaches, as reasonably determined by MCFN.
24. The Parties agree that the FLRs are not employees, contractors, sub-contractors or agents of the Proponent or their consultant(s) and that the FLRs will be responsible for supplying their own personal protective equipment, such as hard hats, safety boots, and safety vests, unless specific or otherwise unique personal protective equipment is required, which will therefore be provided or reimbursed by the Proponent.
25. FLRs take direction from MCFN. MCFN maintains its own liability insurance and pays WSIB contributions in respect of the FLRs. However, MCFN expects that the Proponent will comply with the *Occupational Health and Safety Act* and the Human Rights Code, and maintain a safe, harassment-free work environment. To the extent that the Proponent is responsible for negligence or other failure to maintain a safe and harassment-free work environment, the Proponent will be liable for its negligence or failure and shall indemnify MCFN for injury, accident, discrimination, or harassment by the Proponent's employees, agents or consultants to the extent of that negligence or failure.
26. The Parties agree that, with respect to any unbecoming, inappropriate, or unsafe behaviour on site that is deemed offensive or unsafe by the Proponent or Consultant staff, then the FLRs will be subject to any disciplinary action according to FLR employment policy. However, prior to refusing a LFR entry to a work site or asking a LFR to leave a work site, the Proponent representative will meet the Archaeological Coordinator to attempt to find a mutually acceptable solution. Where the Proponent representative and the Archaeological Coordinator, acting reasonably, are unable to resolve the matter, the FLR will be asked to leave the work site or denied further entry to the work site.

27. The Proponent will require FLRs to sign an undertaking substantially in the form attached as Appendix C to the Agreement signifying said FLRs agreement to adhere to the Proponent's health and safety rules.
28. MCFN shall at its own expense maintain during the term of this agreement a comprehensive general liability ("CGL") policy or policies in respect of FLR. MCFN shall name the Proponent as an additional insured against claims for bodily injury (including death), personal injury, or property damage.

F - Method of Payment

29. Within 60 days of receipt of invoice by MCFN, the Proponent agrees that it will pay the MCFN capacity funding as agreed to above by cheque or bank transfer and upon receipt of an invoice from MCFN. The invoices and back-up documentation provided by MCFN shall provide in reasonable detail the name of the FLR, the hours worked, fee per hour, reasonable mileage, meal allowance, and nature of work performed, allocated against the Project. All invoices will be addressed directly to the Proponent and shall reference the Project in the text of each invoice. All invoices will be prepared as per MCFN-DOCA's standard invoicing format and shall include each FLR's applicable timesheet. Invoices should be submitted electronically to the following address:

Email address: Ken.McCorkle@enbridge.com  
Attention: Ken McCorkle  
Enbridge Gas Inc.  
519-365-0584  
50 Keil Drive N., Chatham, ON N7M 5M1

30. All payment should be made to the MCFN Department of Consultation and Accommodation to the following address. For additional information, please call the office at 905-768-4260.

Email address: [REDACTED]@mncfn.ca  
Attention: MCFN-DOCA  
4065 Highway 6  
Hagersville, Ontario  
N0A 1H0

31. After sixty 60 days, a 3% interest rate will be charged on outstanding invoices.

G – Miscellaneous

32. Without limiting the generality of the foregoing, the Proponent and MCFN agree that amounts paid by the Proponent to MCFN under this Agreement shall not be used for the

improper personal gain of any individual or for any other purpose that might be prohibited by anti-corruption legislation.

33. This Agreement constitutes the entire agreement between Parties and supersedes and replaces any oral representations or oral agreements that may have preceded it, all of which are of no force or effect. Any amendments to this agreement require mutual consent in writing.
34. The Parties shall fulfill their obligations under this Agreement in accordance with all applicable federal and provincial laws and regulations, and shall implement business standards, procedures and controls to avoid any real or apparent impropriety or corruption, conflict of interest, illicit use of influence, of offering or soliciting of improper payments.
35. The funding paid pursuant to this Agreement shall be paid by the Proponent to MCFN. For greater certainty, no payments shall be made by the Proponent to any individuals.
36. This Agreement may be signed in any number of counterparts, each of which is an original, and all of which taken together constitute the Agreement.
37. The terms of this agreement are effective from September 1, 2019, to December 13, 2020. In the event that Project-related activities requiring FLR participation continue past this termination date, a new agreement will be executed between Parties.

[The remainder of this page is intentionally left blank.]

The Proponent and MCFN agree to the terms above on this 24 day of September, 2019,

[Redacted Signature]

Authorized Signatory on behalf of  
The Proponent

Ken McCorkle  
Sr. Advisor  
Enbridge Gas Inc.

[Redacted Signature]

Authorized Signatory on behalf of  
Mississaugas of the Credit First Nation

[Redacted Signature]

Director  
Dept. of Consultation and Accommodation  
Mississaugas of the Credit First Nation

[Redacted Signature]

Witness

[Redacted Signature]

[printed name of witness]  
[job title]  
[department]  
[name of the proponent]

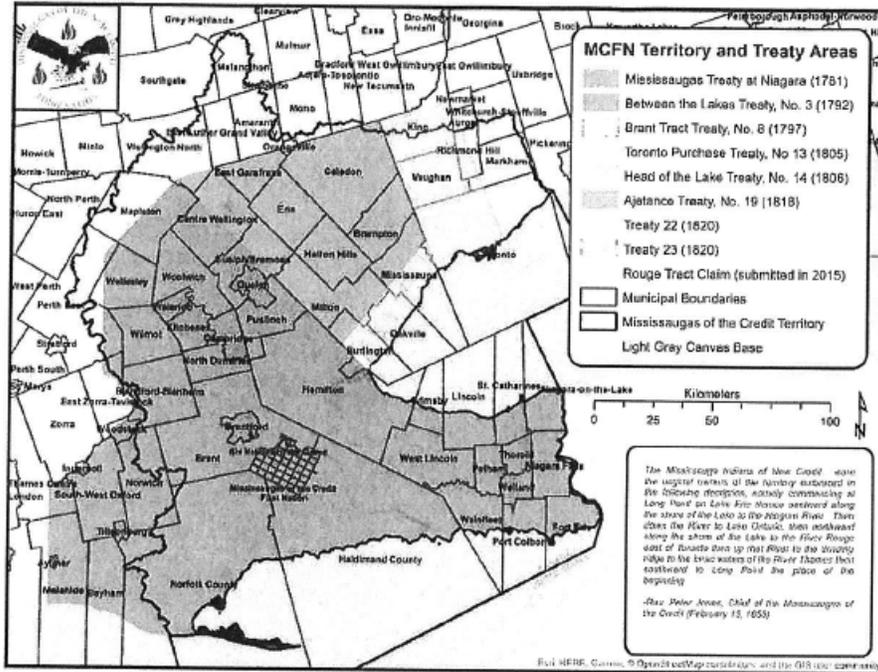
[Redacted Signature]

Witness

[Redacted Signature]

Archaeological Operations Supervisor  
Dept. of Consultation and Accommodation  
Mississaugas of the Credit First Nation

Schedule A



Municipalities within Mississaugas of the Credit Treaty Lands and Territory

Attachment 2.12

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**From:** [REDACTED]@stantec.com>

**Sent:** Wednesday, October 9, 2019 8:08 PM

**To:** Ken McCorkle <KMcCorkle@uniongas.com>; [REDACTED]@mncfn.ca> [REDACTED]

[REDACTED]@mncfn.ca>; [REDACTED]@mncfn.ca>

**Subject:** Friday Meeting

Hi All,

Apologies for the late night email. My wife just reminded me that I need to take my son to a specialist appointment on Friday. As a result, I need to take a rain check. My apologies again. If we are able to connect another day, that would be great! If not, I'll connect with Megan and Peter prior to the start of any fieldwork so that we can discuss and be on the same page.

Cheers,

[REDACTED]

**From:** [REDACTED]@mncfn.ca]  
**Sent:** October-10-19 9:54 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** [External] RE: Friday Meeting

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Hi [REDACTED] and Ken,

I think therefore we should postpone the meeting. As it is already mid-October, I do not anticipate there will be significant work yet this fall. Let's touch base as we near the start of the 2020 field season; Peter and I hope to discuss with you the best path forward to ensure that MCFN engagement during the Stage 2 program is meaningful and well-planned.

In the meantime, [REDACTED] are you able to provide an update on whether DOCA should expect any archaeological and/or environmental fieldwork yet this fall? We are beginning to review the number of FLRs on staff as we move into the slower season and would like to plan adequately for any 2019 work.

Thank you,

[REDACTED]

Attachment 3.1

From: [REDACTED]  
To: [REDACTED]@sixnations.ca; [REDACTED]@sixnations.ca  
Cc: Ken McCorkle  
Subject: Union Gas Kirkwall Hamilton Pipeline Project  
Sent: Mon 11/02/2019 12:18 PM

Message: Hamilton Kirkwall Project Map.pdf (1 MB) Six Nations of the Grand River Notification letter.pdf (202 KB)

Good morning Chief Hill and [REDACTED]

Hope this finds you well.

Please find attached a letter and map referencing our Kirkwall Hamilton Pipeline Project.

We look forward to speaking with you on this project.

Miigwech, Thank you

[REDACTED]

[REDACTED]

Analyst, Indigenous Affairs

ENBRIDGE GAS INC. OPERATING AS UNION GAS  
TEL: 519-657-4100 x 5153545 | CELL: 519-852-3474 [REDACTED]@uniongas.com  
109 Commissioners Road West, London, ON N6A4P1  
uniongas.com  
Integrity. Safety. Respect.



Chief Ava Hill  
Six Nations of the Grand River  
PO Box 5000  
Ohsweken, Ontario  
N0A 1M0

February 11, 2019

**Re: Union Gas Kirkwall-Hamilton Pipeline Project**

Dear Chief Hill,

Union Gas Limited has been bringing clean, reliable, and affordable natural gas service for more than a century to over 400 communities across Ontario.

To increase existing capacity and accommodate additional demand for natural gas, Union Gas is proposing to construct a new NPS 48-inch diameter natural gas pipeline. The proposed pipeline is planned to be in service as early as fall 2021 and will be located within the municipality of the City of Hamilton. The proposed pipeline will generally parallel three existing Union Gas pipelines between the existing Kirkwall valve site and the Hamilton gate station. The length of the pipeline will be determined by the final route chosen but will be approximately 10-14km.

We would like to consult with your community on this proposed project. We are interested in your community's feedback, including any suggestions or proposals on mitigating, avoiding or accommodating any potential impacts to Aboriginal or treaty rights.

Union Gas has been delegated the procedural aspects for consultation by the Ministry of Energy on behalf of Ontario. Ministry officials are also available should you wish to contact them directly with any questions or concerns. Please contact:

Raina Crasto  
Policy Advisor, Indigenous Energy Policy  
Ministry of Energy, Northern Development and Mines  
(416) 326-4571  
Raina.crasto@ontario.ca

We would like to set up a meeting to discuss our project with you and provide you with an opportunity to express any questions or concerns you have. Please feel free to contact me at [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com) or 519-365-0584 so we can set up a time to meet.

Miigwech,

Ken McCorkle  
Manager, Indigenous Affairs

PO Box 2001, 50 Keil Drive North, Chatham, Ontario N7M5M1 [www.uniongas.com](http://www.uniongas.com)  
Union Gas Limited

Attachment 3.2



February 12, 2019

Six Nations of the Grand River  
1695 Chiefswood Road, PO Box 5000  
Ohsweken, ON N0A 1M0  
avahill@sixnations.ca

SENT VIA EMAIL

Attention: Chief Ava Hill

Dear Chief Hill,

Reference: Enbridge Gas Inc. Pipeline Project – Notification of  
Commencement and Information Session: Kirkwall-Hamilton  
Pipeline Project

To increase existing capacity and accommodate additional demand for natural gas, Enbridge Gas Inc. is proposing to construct a new 48-inch diameter natural gas pipeline located within the City of Hamilton. (Note: As of Jan. 1, 2019, Union Gas and Enbridge Gas Distribution have amalgamated into one utility with the legal name Enbridge Gas Inc.)

The proposed project will be constructed between Enbridge Gas' existing Kirkwall valve site, located northeast of the intersection of Safari Road and Valens Road and Enbridge Gas' existing Hamilton valve site, located east of Highway 6 and north of Carlisle Road, generally paralleling three existing Enbridge Gas pipelines. The length of the proposed pipeline will be determined by the final route chosen after input from the community but will be approximately 10-14km. If approved, construction of the pipeline could begin as early as spring/summer 2021 and be complete by the end of 2021.

As an integral part of this project, Enbridge Gas has hired Stantec Consulting Ltd. to undertake an environmental study of the construction and operation of the proposed pipeline and related facilities. The environmental study will fulfill the requirements of the Ontario Energy Board's (OEB) *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario (2016)*. The environmental study process includes consultation and engagement with landowners, municipalities, agencies, Indigenous communities, and other interested parties through notices, mailouts, meetings, and Information Sessions.

An Environmental Report, summarizing the results of the environmental study, will accompany Enbridge Gas' application to the OEB. The Environmental Report for the proposed project is anticipated to be completed and submitted to the OEB as early as the summer of 2019 as part of the overall project application.

An Information Session is planned to seek feedback on the project in general, the alternative pipeline routes and the preliminary preferred pipeline route. The Information Session will be conducted as a drop-in, and representatives from both Enbridge Gas and Stantec Consulting Ltd. will be available to answer questions.

**Wednesday, Feb. 27, 2019**  
5 p.m. to 8 p.m.  
Carlisle Arena  
1496 Centre Road  
Carlisle, ON L0R 1H2

Six Nations of the Grand River is invited to attend the Information Session and provide comments regarding the proposed project. Specifically, Stantec is seeking information about

P.O. Box 2001, 50 Keil Drive North, Chatham, ON, N7M 5M1 [www.uniongas.com](http://www.uniongas.com)  
Enbridge Gas

any adverse impacts that the proposed project may have on constitutionally protected aboriginal or treaty rights and any measures for mitigating those adverse impacts. Stantec is also seeking background environmental and socio-economic information that may be useful in compiling an inventory.

If you cannot attend the Information Session but would like to learn more about the project, please contact the undersigned.

Additional project information is available at: [uniongas.com/projects](http://uniongas.com/projects)

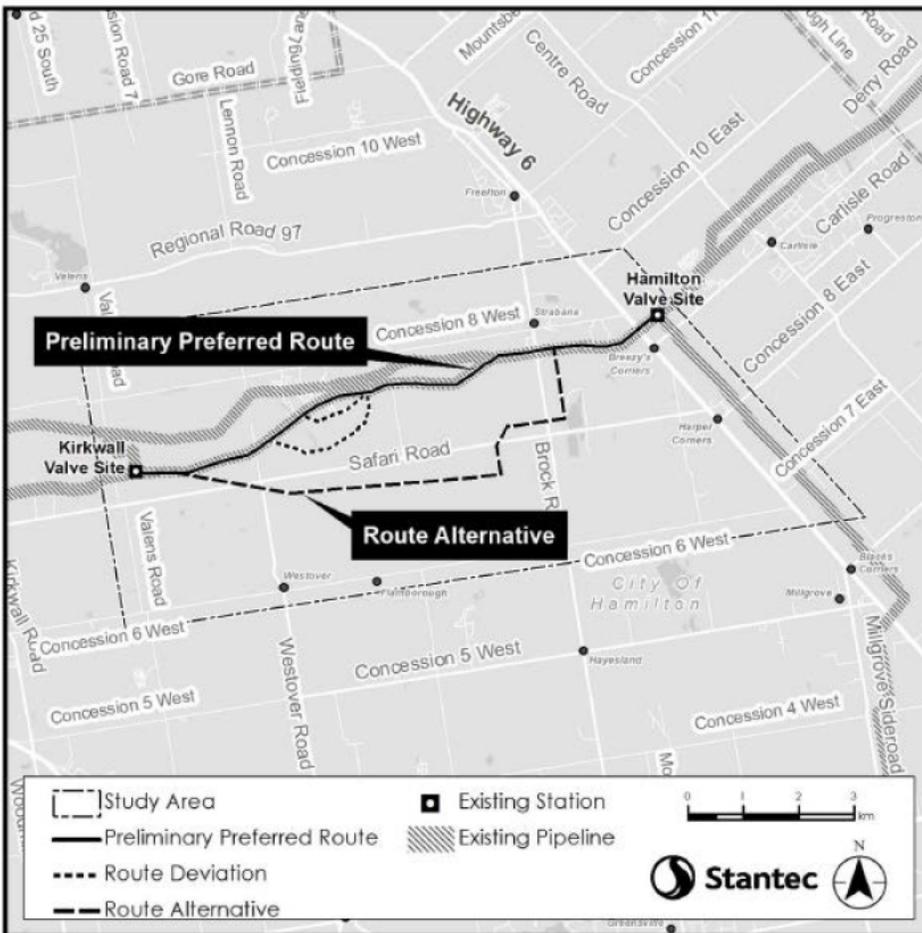
Miigwech,

*Ken McCorkle*

**Ken McCorkle**  
Manager, Indigenous Affairs Enbridge Gas Inc.  
50 Keil Drive North Chatham, ON N7M 5M1  
Phone: 519-436-4600 ext. 5002243  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)

Attachment: Map of Alternative Routes

c. [REDACTED], Stantec Consulting Ltd.



Attachment 3.3

**From:** [Ken McCorkle](#)  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Stratford Project!  
**Date:** February-23-19 9:32:45 AM

---

Hello [REDACTED]

Thank you for your time, along with your consultation committee, to meet to address the Stratford project. The meeting was very productive with a number of great questions asked. As per your request I will forward a copy of our EA for this project.

As part of that meeting I will also follow up with our Environmental planner to further discuss the Kirkwall-Hamilton project I presented yesterday.

As I mentioned please do not hesitate to contact at me at any time regarding the aforementioned projects.

Miigwetch,  
Ken

Attachment 3.4

---

**From:** [REDACTED]@sixnations.ca]  
**Sent:** May-29-19 10:25 AM  
**To:** Ken McCorkle  
**Subject:** [External] re: UG meeting

Moring Ken

We have a few days next week open to meet with you.

June 5, 2019 - anytime  
June 7, 2019 – anytime

Please let me know your preference.

[REDACTED]

[REDACTED]

Consultation Supervisor  
Six Nations of the Grand River  
Phone: 519-753-0665  
Fax: 519-753-3449  
Email: [jthomas@sixnations.ca](mailto:jthomas@sixnations.ca)

---

**From:** Ken McCorkle [<mailto:KMccorkle@uniongas.com>]  
**Sent:** May 29, 2019 11:10 AM  
**To:** [REDACTED]@sixnations.ca>  
**Subject:** RE: re: UG meeting

Hello [REDACTED]  
Thank you for getting back to me with some dates!  
We could you meet you at 11:00AM on Friday June 7<sup>th</sup>  
Please confirm and I will get this in our calendar? Again thank you for the response!

Miigwech,  
Ken

*Ken McCorkle*  
Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. : Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell; 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
We can't change the past, but we can influence our future

---

**From:** [REDACTED]@sixnations.ca]  
**Sent:** May-29-19 11:24 AM  
**To:** Ken McCorkle  
**Subject:** [External] RE: re: UG meeting

Sorry Ken, [REDACTED] on vacation on June 7.

Do you have some open dates for the next week except Wednesday June 12, in the afternoon.

Let me know .

[REDACTED]  
Consultation Supervisor  
Six Nations of the Grand River  
Phone: 519-753-0665  
Fax: 519-753-3449  
Email: [REDACTED]@sixnations.ca

---

**From:** Ken McCorkle [mailto:KMcCorkle@uniongas.com]  
**Sent:** May 29, 2019 11:34 AM  
**To:** [REDACTED]@sixnations.ca>  
**Subject:** RE: re: UG meeting

Hello [REDACTED]  
We could set Friday June 14th at 1:00PM to meet? Please confirm?

Miigwech  
Ken

*Ken McCorkle*  
Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. :Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell; 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
We can't change the past, but we can influence our future

**From:** [REDACTED]@sixnations.ca]  
**Sent:** May-30-19 3:10 PM  
**To:** Ken McCorkle  
**Subject:** [External] RE: re: UG meeting

Hi Ken,

I'm sorry but [REDACTED] has booked vacation for all the Fridays in June.

Days in June we are not available:

June 6, 7, 12, 14, 19, 20, 21, 24, 28.

And these are the days I know of.

Can you chose a date other than the ones I sent to you.

Thanks.

[REDACTED]

[REDACTED]

Consultation Supervisor  
Six Nations of the Grand River  
Phone: 519-753-0665  
Fax: 519-753-3449

**From:** Ken McCorkle [<mailto:KMccCorkle@uniongas.com>]  
**Sent:** May 30, 2019 4:17 PM  
**To:** [REDACTED] [@sixnations.ca](mailto:[REDACTED]@sixnations.ca)>  
**Subject:** RE: re: UG meeting

Hello [REDACTED]  
Would Wednesday June 5<sup>th</sup> at 1:00 work?

Miigwech,  
Ken

*Ken McCorkle*

Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. : Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell; 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
We can't change the past, but we can influence our future

---

**From:** [REDACTED] [@sixnations.ca](mailto:[REDACTED]@sixnations.ca)]  
**Sent:** June-04-19 8:58 AM  
**To:** Ken McCorkle  
**Subject:** [External] RE: re: UG meeting

Yes Ken, June 5 is still good for us.

Sorry about the late confirmation.

[REDACTED]

Consultation Supervisor  
Six Nations of the Grand River  
Phone: 519-753-0665  
Fax: 519-753-3449  
Email: [REDACTED] [@sixnations.ca](mailto:[REDACTED]@sixnations.ca)

From: Ken McCorkle  
To: [REDACTED]  
Cc: [REDACTED]  
Subject: RE: re: UG meeting

Sent: Tue 04/06/2019 9:08 AM

Hello [REDACTED]  
Yes we will attend tomorrow (June 5) at 1:00 PM. Thank you for the response and looking forward to seeing you again!

Miigwech,  
Ken

*Ken McCorkle*  
Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. :Operating as Union Gas  
Phone: 519-438-4600 Ext.5002243  
Cell: 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)  
We can't change the past, but we can influence our future

Attachment 3.5

**From:** [REDACTED]  
**To:** [REDACTED] <[REDACTED]@ixnations.ca>  
**Cc:** Ken McCorkle; [REDACTED]  
**Subject:** [External] Enbridge Gas Inc. - Kirkwall-Hamilton Pipeline - Archaeology and Natural Heritage  
**Date:** August-29-19 9:50:48 AM

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Good Morning [REDACTED]

Further to the notice of commencement provided in February 2019, Enbridge Gas Inc. (Enbridge Gas) is proposing to construct a new 48-inch diameter natural gas pipeline located within the City of Hamilton. The proposed project will be constructed between Enbridge Gas' existing Kirkwall valve site, located northeast of the intersection of Safari Road and Valens Road and Enbridge Gas' existing Hamilton valve site, located east of Highway 6 and north of Carlisle Road, generally paralleling three existing Enbridge Gas pipelines. Construction of the pipeline could begin as early as spring/summer 2021 and be complete by the end of 2021.

To support the project, Stantec Consulting Ltd. (Stantec) will be initiating a Stage 2 archaeological assessment to identify archaeological resources which may be impacted by the construction and operation of the proposed pipeline. Stantec will also be initiating natural heritage studies to support the project. Dependent on weather conditions, it is anticipated that the archaeological survey work and natural heritage studies may begin as early as September 2019. It is anticipated that Stage 2 assessment will continue in 2020 once conditions are adequate for survey. We welcome the opportunity to include a member of your community on the archaeological survey team and the natural heritage survey team. If a member wishes to participate, please let us know at your earliest convenience so that we can work through the logistics of a contract. [REDACTED] will be leading the archaeological surveys for the project, and will be your point-of-contact for any archaeological assessment details. [REDACTED] will be leading the natural heritage surveys for the project, and will be your point-of-contact for any natural heritage survey details. Once an agreement has been reached, Stantec will reach out with further details regarding a meeting time, place, and required personal protective equipment for the archaeological and natural heritage surveys.

On behalf of Enbridge Gas and Stantec, we look forward to working with you on this project.

Looking forward to hearing from you!  
Thanks,

[REDACTED]  
Associate, Senior Archaeologist  
Environmental Services

Direct: 519-675-6640  
Cell: 226-268-7196  
Stantec  
600-171 Queens Avenue

*Ken McCorkle*

Sr Advisor, Indigenous Affairs  
Enbridge Gas Inc. : Operating as Union Gas  
Phone: 519-436-4600 Ext.5002243  
Cell: 519-365-0584  
Toll Free: 877-293-6215  
Email: [kmccorkle@uniongas.com](mailto:kmccorkle@uniongas.com)

We can't change the past, but we can influence our future

**From:** [REDACTED]  
**To:** [REDACTED]@ixnations.ca"; [REDACTED]  
**Cc:** Ken McCorkle; [REDACTED]  
**Subject:** [External] RE: Enbridge Gas Inc. - Kirkwall-Hamilton Pipeline - Archaeology and Natural Heritage  
**Date:** September-10-19 3:21:29 PM

---

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Good Afternoon [REDACTED]

I am following up on the invitation to participate in the archaeological and natural heritage field work associated with Enbridge's Kirkwall-Hamilton Pipeline as noted below. Please let me know if participation in this project is desired and we can start working on an agreement together.

Thanks,  
[REDACTED]

1                                   **INTEGRATED RESOURCE PLANNING PROPOSAL**

2   The purpose of this evidence is to provide an overview of the Enbridge Gas Integrated  
3   Resource Planning Proposal (the “IRP Proposal”) in support of establishing an IRP  
4   framework to guide Enbridge Gas’s assessment of IRPAs relative to other facility and  
5   non-facility alternatives to serve the forecasted needs of Enbridge Gas customers.

6  
7   As set out at Exhibit A, Tab 2, Enbridge Gas requests that the OEB determine that the  
8   policy direction set out within the IRP Proposal is reasonable and appropriate.

9   Approval of the IRP Proposal will allow Enbridge Gas to create actionable IRP plans to  
10   support future avoidance or deferral of infrastructure requirements. Enbridge Gas is  
11   committed to considering IRPAs, as appropriate, immediately following the identification  
12   of future expansion/reinforcement projects in the AMP. When an eligible project is  
13   identified in the asset planning process, it will be assessed for possible development of  
14   IRPAs. This approach will ensure that Enbridge Gas has adequate lead time to fully  
15   assess and put forward IRPAs that can effectively reduce peak period demands and  
16   defer the need to construct comparable facility projects. Where approvals are required  
17   for IRPA spending or other items, Enbridge Gas will seek approval from the OEB  
18   before incurring those expenses.

19

1 This Tab of evidence is organized as follows:

- 2 1. IRP Background
- 3 2. IRP Policy Proposal
- 4 3. IRP is Not a Viable Alternative to the Project
- 5 4. Conclusion

6

7 Enbridge Gas has included its IRP Proposal with this Application for three reasons:

- 8 i) To be responsive to the direction received from the OEB: (a) in recent leave to  
9 construct application decisions where the OEB directed Enbridge Gas to provide  
10 sufficient and timely evidence of how traditional Demand Side Management  
11 (“DSM”) has been considered as an alternative at the preliminary stage of project  
12 development;<sup>1</sup> and (b) in the OEB’s Report of the Board on the DSM Mid-Term  
13 Review where the OEB stated that it expects the natural gas utilities to develop  
14 more rigorous, robust and comprehensive procedures to ensure conservation  
15 and energy efficiency opportunities can be reasonably considered as alternatives  
16 to future capital projects.<sup>2</sup>
- 17 ii) To establish the necessary IRP policy guidance required for Enbridge Gas to be  
18 successful in considering IRPAs as non-facility alternatives to future  
19 expansion/reinforcement projects effectively and efficiently, including

---

<sup>1</sup> EB-2018-0097, Decision and Order, January 3, 2019, p. 6.

<sup>2</sup> EB-2017-0127/0128, Report of the Board: Mid-Term Review of the Demand Side Management (DSM) Framework for Natural Gas Distributors (2015-2020), November 29, 2018, pp. 6, 20-21.

1            acknowledgement of Advanced Metering Infrastructure (“AMI”) as an IRP  
2            enabling element.

3            iii) To demonstrate that IRP is not a viable alternative to avoid or delay the proposed  
4            Project, which is required to meet demand that already exists and is forecast in  
5            the near future. This underlines the need to clarify the role of IRP, particularly in  
6            relation to high-volume transmission and distribution projects where IRPAs do  
7            not appear to be cost-effective and/or feasible.

8  
9            Enbridge Gas acknowledges the OEB’s expectation that IRP may be addressed in the  
10           context of the upcoming post-2020 Natural Gas DSM Framework (EB-2019-0003).

11           Enbridge Gas does not believe that this is appropriate and submits that IRP should be  
12           reviewed and treated separately from DSM. Enbridge Gas believes it is important to  
13           clearly delineate between IRP activities and traditional DSM programming. The  
14           Enbridge Gas IRP Proposal seeks to address IRP planning and its full complement of  
15           IRPAs separately from DSM. Among other things, that is because the goals of IRP (to  
16           avoid or defer planned expansion/reinforcement projects through the reduction of  
17           forecasted peak period demand) are different from the goals of DSM (to reduce natural  
18           gas consumption, promote conservation / energy efficiency and to generally mitigate  
19           future annual load growth and related general facilities requirements).<sup>3</sup>

---

<sup>3</sup> This is underlined by looking at various system demand forecast types and the appropriateness of IRPAs or DSM to reduce such demands, including: design day demand, which influences design of transmission systems (i.e. Dawn Parkway System), drives related transmission system expansion/reinforcement projects and is managed as part of Enbridge Gas’s Transmission System

1 As set out in Enbridge Gas's Written Comments filed as part of the OEB's Post-2020  
2 Natural Gas Demand Side Management Framework Consultation,

3

4 Enbridge Gas does not believe the third goal included in the 2015-2020 DSM  
5 Framework pertaining to natural gas infrastructure planning belongs as a goal of the  
6 Post-2020 Framework. Though DSM programs can impact infrastructure  
7 requirements, and the cost savings associated with a broad-based reduction in  
8 distribution costs are included in the DSM planning process, the linkages between  
9 DSM planning and capital asset planning are currently passive rather than active.  
10 Enbridge Gas views the DSM Framework, with a broad objective of gas conservation,  
11 and the active leveraging of DSM as an alternative to support local and regional  
12 infrastructure planning, to have separate and distinct objectives...Enbridge Gas  
13 believes separating IRP from DSM is appropriate as it will afford the assessment of  
14 IRP with the required visibility and attention necessary to comprehensively address all  
15 aspects of infrastructure planning.<sup>4</sup>  
16

## 17 **1. IRP Background**

18 For the purposes of this Application, IRP refers to a multi-faceted planning process that  
19 includes the identification, implementation, and evaluation of realistic natural gas  
20 supply-side and demand-side options (including the interplay of these options) to  
21 determine the solution that provides the best combination of cost and risk for our  
22 customers.<sup>5</sup> Any solution may include alternatives to reduce natural gas in-franchise  
23 peak period demand growth to defer future transmission and distribution system facility  
24 expansion/reinforcement projects. In this application, Enbridge Gas refers to these  
25 solutions as IRPAs. IRPAs are determined by understanding potential transmission

---

Planning and Gas Supply Planning processes; peak hour demand, which influences design of distribution systems, drives related distribution system expansion/reinforcement projects, is managed as part of Enbridge Gas's Distribution System Planning processes and is most appropriate for consideration of IRPAs; and average annual demand, which is the metric by which energy savings resulting from traditional DSM is measured under the OEB-approved 2015-2020 DSM Framework.

<sup>4</sup> EB-2019-0003, Written Comments, June 27, 2019, pp. 10-11.

<sup>5</sup> Enbridge Gas recognizes that ultimately optimal planning may expand in the future to include all energy sources (including electricity).

1 and/or distribution system constraints, analyzing alternative options, and assessing the  
2 costs of viable alternatives versus facility expansion/reinforcement alternatives. Any  
3 IRPA implemented must not impair the Enbridge Gas obligation to ensure there is  
4 adequate supply and transportation capability on a given design day and peak hour to  
5 meet customer needs, and that safe and reliable service is maintained.

6

7 As part of its OEB-approved 2015-2020 DSM Plan, EGD put forward a comprehensive  
8 IRP Study outline. In its decision regarding the Utilities' 2015-2020 DSM Plans, the  
9 OEB asked the Utilities to jointly complete a study scope for IRP as filed by EGD and to  
10 consider the enhancements suggested by intervenors and expert witnesses, such as  
11 the inclusion of demand response options; the role of new construction programs; and  
12 best practices in electric IRP. In accordance with the OEB's direction, the Utilities  
13 included all recommendations and enhancements into the revised IRP Scope of Work.  
14 Specifically, the Board, in its decision on the 2015-2020 DSM Plans found,

15

16 As indicated in the DSM framework, it is appropriate that the gas utilities study  
17 and submit a methodology for assessing the appropriate role for DSM as part  
18 infrastructure planning at the mid-term DSM review.<sup>6</sup>  
19

20 Accordingly, the Utilities jointly engaged ICF International to conduct an IRP Study. The  
21 IRP Study, discussed in more detail below, was critically important to understand the  
22 feasibility of deferring or avoiding future distribution facility expansion/reinforcement

---

<sup>6</sup> EB-2015-0029/0049, Decision and Order, January 20,2016, p. 83.

1 projects by reducing customer demands, and if determined to be feasible, to achieve an  
2 understanding of unresolved policy issues and next steps in the development of IRP in  
3 Ontario.<sup>7</sup>

4  
5 The ICF IRP Study provided: (i) a review of the potential to defer distribution  
6 infrastructure with incremental energy efficiency; (ii) a jurisdictional review of natural gas  
7 IRP; and (iii) a preliminary basis for reviewing energy efficiency, one of several IRPAs,  
8 in LTC applications.

9  
10 As part of the IRP Study, ICF found that based on their initial assessment of the  
11 potential to reduce peak hour demand using traditional DSM, it appeared possible that  
12 some distribution infrastructure investments may be reduced using targeted DSM  
13 (referred to as enhanced targeted energy efficiency herein). ICF also found that  
14 changes to the Utilities' (EGD and Union) internal planning processes, to Ontario's  
15 energy policies and to utility regulatory structure would be necessary to facilitate the use  
16 of enhanced targeted energy efficiency to reduce distribution infrastructure investments.  
17 While ICF's recommendations were made in the context of enhanced targeted energy  
18 efficiency and subsequent impacts on distribution infrastructure, they remain relevant to  
19 IRP initiatives more broadly.

20

---

<sup>7</sup> The full IRP Study was filed in response to interrogatories in EGD's Bathurst leave to construct application EB-2018-0097, Exhibit I.EGDI.SEC.1, Attachment 1, October 11, 2018.

1 During the IRP Study (2017/2018), ICF sought to assess how other leading North  
2 American natural gas utilities addressed issues related to DSM and facilities planning.  
3 Unfortunately, ICF found no readily available precedent of a North American natural gas  
4 utility that was considering the impact of broad-based traditional DSM, geo-targeted  
5 DSM (enhanced targeted energy efficiency) or dedicated Demand Response (“DR”)  
6 programs on its distribution facilities’ planning process. Since the ICF IRP Study was  
7 completed, more North American utilities have engaged in activities that consider non-  
8 wires and non-pipeline alternatives to defer the need to construct new infrastructure.  
9 Critically, the IRP activities of other such North American utilities were preceded by the  
10 development and issuance of regulatory and policy guidelines by their respective  
11 jurisdictions and regulators.<sup>8</sup>

12

13 For electric utilities, investment in cost-effective IRP results may be easier to achieve  
14 because of the high cost of generation, transmission and distribution electricity  
15 infrastructure and the need to meet electricity demand instantaneously as compared to  
16 the nature of transmission and distribution of natural gas and related infrastructure.  
17 This does not mean to say that there are not any cost-effective IRPAs for natural gas.  
18 Indeed, the IRP Study indicated that there may be instances when IRPAs are less  
19 costly than distribution facility alternatives.<sup>9</sup> This makes the need for an IRP policy

---

<sup>8</sup> See, for example, initiatives and programs in British Columbia (Fortis BC), New York State (Reforming the Energy Vision and Consolidated Edison Inc.) and California (non-wires pilot regulatory incentive mechanism).

<sup>9</sup> Exhibit I.EGDI.SEC.1, Attachment 1, October 11, 2018, p. ES3.

1 framework clear. How does Enbridge Gas assess the alternatives and what are the risk  
2 assessments that are undertaken? What is the appropriate level of cost and risk that is  
3 optimal for natural gas customers?

4

5 Once Enbridge Gas identifies the need for infrastructure expansion/reinforcement driven  
6 by increased peak period demands, facility alternatives (traditionally pipelines,  
7 compressors and ancillary facilities but could also include CNG / LNG options), non-  
8 facility alternatives (such as winter peaking service and supply options) and IRPAs with  
9 the potential to reduce peak period demand will be investigated. As part of this  
10 investigation, potential IRPAs considered to reduce natural gas consumption and  
11 thereby defer capital expenditures may include:

- 12 • Demand Response – DR programs seek to adjust the demand for natural gas by  
13 end users instead of adjusting facilities or gas supply. DR includes programs for  
14 residential, commercial and industrial customers which are designed to incent or  
15 oblige the customer to reduce or shift energy usage during peak periods. DR  
16 solutions within the natural gas sector are not as common as in the electrical  
17 sector and can be varied in nature depending on customer mix. In addition, there  
18 has been a significant trend towards commercial and industrial customers  
19 moving away from interruptible rates for their natural gas as they value certainty  
20 of supply over the cost reduction.
- 21 • Enhanced Targeted Energy Efficiency – Enhanced Targeted Energy Efficiency  
22 includes supplementing existing annual volume-focused traditional DSM with

1 additional spending on existing DSM programs focused solely on peak period  
2 demand reductions in specific areas, or by implementing new programs that don't  
3 fit within the current DSM construct, but which provide actual peak period  
4 reductions (e.g., targeted furnace replacement programs).

- 5 • Compressed Natural Gas – Bulk Compressed Natural Gas (“CNG”) is an energy  
6 delivery option that relies on specialized over-the-road trailers (tube trailers)  
7 containing compressed natural gas being injected into Enbridge Gas systems at  
8 critical points. Once injected, the compressed natural gas provides a secondary  
9 source to serve customer demand in a targeted area. Natural gas, whether  
10 conventional or renewable, can be stored under high pressure, in a gaseous  
11 state, and injected into Enbridge Gas systems. Enbridge Gas is interested in  
12 evaluating the applicability and cost impacts of relying upon bulk CNG as a  
13 demand peak-shaving alternative for non-emergency situations.

- 14 • Low-Carbon and Non-Gas Solutions – Technologies that reduce the amount of  
15 energy/fuel used for the same output (and also reduce carbon emissions).  
16 Technologies include but are not limited to air source heat pumps and  
17 geothermal heating/cooling. Adoption of these options would reduce peak period  
18 demand, particularly where the technologies are used for heating (which is most  
19 required during peak demand periods).

20 This listing of potential IRPAs will continue to develop over time and as new  
21 technologies and solutions become commercially available.

1    **2. IRP Policy Proposal**

2    As noted, Enbridge Gas is committed to considering IRPAs, as appropriate, immediately  
3    following the identification of potential need for future expansion/reinforcement projects  
4    in the AMP. This IRP Proposal sets out the considerations that will influence how  
5    Enbridge Gas assesses and implements IRPAs that are determined to be preferred  
6    alternatives to address forecasted customer demand. In the subsections that follow,  
7    Enbridge Gas details each component of its IRP Proposal.

8

9            **i) Goals of IRP for Enbridge Gas**

10   For Enbridge Gas, IRP is aimed at reviewing and implementing alternatives that reduce  
11   natural gas in-franchise peak period demand growth to defer or avoid future  
12   transmission and distribution system facility expansion/reinforcement projects.  
13   Enbridge Gas only intends to implement IRPAs that reduce the need for future  
14   infrastructure expansion/reinforcement by reducing peak period demand (whether that  
15   is peak day, which is relevant to transmission facilities, or peak hour, which is relevant  
16   to distribution facilities).

17            **ii) Where should IRP be considered?**

18   IRP is a detailed process of reviewing supply and demand-side alternatives to address  
19   forecasted facility requirements. If this process was undertaken with every forecasted  
20   facility project, it would be extremely time intensive. So that resources are optimized,  
21   the first step in assessing the appropriateness of IRP alternatives to reduce, defer or  
22   avoid the need for identified facility projects is to understand which facility projects are in

1 and out of scope. Some basic attributes of facility expansion/reinforcement projects  
2 support a binary screening of the relevance of IRPAs, such as: the nature of the facility  
3 project, year-over-year load growth, lead time for the facility project and project capital  
4 cost. Other attributes are informative, but do not provide certainty as to the likely  
5 outcome of an IRP assessment. Table 13-1 below summarizes the various project  
6 attributes to determining the relevance of IRPAs.

7 **Table 13-1**  
8 **Project Attributes Supporting Relevance of IRPAs**

Project Attributes	Eligibility
Type of Facility Project	Load growth-based expansion/reinforcement projects
Annual Load Growth	1.4% maximum forecasted load growth
Timing for Required Facility	Require a three year or greater lead time in advance of the planned leave to construct application
Project Capital Cost	\$10MM and above
Complexity	The ideal area for an IRP would have low complexity and simplicity of feeds
Market Mix	A mix of residential, commercial and industrial customers provides a broader base of alternatives from which to consider
Other Attributes	Leveraging other Infrastructure

9  
10 In addition to the screening criteria set out above, Enbridge Gas will also take project-  
11 specific considerations into account. For example, where there is municipal  
12 infrastructure work in a specific corridor, at a specific time, it may be appropriate to  
13 proceed with a facility expansion/reinforcement project even though it could otherwise  
14 be deferred for some limited time through investment in IRPs/IRPAs.<sup>10</sup>

---

<sup>10</sup> This was articulated by ICF in the IRP Study: "The desire to take advantage of other infrastructure projects and the need to minimize community disruptions can lead to upsizing or accelerating facility investments for projects where future expansions would be particularly disruptive or expensive and may

1

2 **iii) What activities/projects (IRPAs) are eligible to be included within an**  
3 **IRP?**

4 The goal of an IRP/IRPA is to reduce peak period demand. Enbridge Gas believes it  
5 should have the ability to use a broad range of options to achieve this goal. Some  
6 activities that will reduce peak period demand may extend beyond traditional distribution  
7 or conservation initiatives (e.g. air source heat pumps and geothermal systems which  
8 rely upon energy sources other than natural gas). As part of the IRP Proposal,  
9 Enbridge Gas is seeking confirmation that non-gas alternatives can be included in the  
10 range of possible and available IRPAs.

11

12 **iv) How to determine whether to proceed with an IRP?**

13 Having determined that a future facility expansion/reinforcement project should be  
14 evaluated as an IRP candidate, the next step is to review whether an IRP/IRPA could  
15 be successful in deferring or avoiding the facility project. It is important to note that the  
16 peak period demand savings forecast to be achieved through IRPAs will need to be  
17 higher than the peak period demand to be served by the facility project (the ICF study  
18 suggested a factor of 121%).<sup>11</sup> The reason for this is that the peak period demand  
19 savings may not fully materialize, so a conservative approach is required before a

---

make deferral of some gas infrastructure projects impractical despite the potential for geo-targeted DSM to reduce demand.” Exhibit I.EGDI.SEC.1, Attachment 1, October 11, 2018, p. ES14.

<sup>11</sup> Exhibit I.EGDI.SEC.1, Attachment 1, October 11, 2018, p. ES18.

1 decision is taken to defer or avoid a planned future facility expansion/reinforcement  
2 project.

3

4 Enbridge Gas proposes a two-stage process for analyzing IRPs/IRPAs. The first stage  
5 is a high-level review for reasonability that compares the cost of the facility  
6 expansion/reinforcement project with the cost of IRPAs that could reduce peak period  
7 demand sufficiently to defer or avoid the facility project. This first stage essentially  
8 captures the full cost of the proposed facility project compared to IRPA costs (each  
9 determined on a high-level, rule of thumb basis). A simplified methodology at the first  
10 stage allows for broader consideration of IRPAs in comparison to facility projects, while  
11 minimizing the costs associated with detailed analysis for every potential facility project.  
12 The IRP study findings estimate that only 14-17% of reinforcements in the sample  
13 (which only included distribution reinforcements) could feasibly be replaced by an  
14 IRPA.<sup>12</sup> Detailed analysis of every facility application would require a significant cost, so  
15 a simplified screening is appropriate to minimize costs to ratepayers.

16

17 Enbridge Gas will maintain a list of potential IRPAs, with high-level estimates of the cost  
18 and capacity potential for each individual IRPA for the purposes of stage 1 screening.  
19 Where an IRPA appears feasible in stage 1 screening, the evaluation will move to a  
20 second stage screening that builds upon stage 1 results by applying more specific  
21 assumptions and more detailed regional and technical information, including: customer

---

<sup>12</sup> Exhibit I.EGDI.SEC.1, Attachment 1, October 11, 2018, p.138.

1 mix (including large customers whose peak demand can be mitigated); contractor  
2 availability; characteristics of housing and building stock; and prior success of DSM and  
3 other energy efficiency and conservation programs.

4

5 At the second stage, Enbridge Gas will calculate preliminary total project costs, revenue  
6 requirements, associated customer rate impacts and depreciation rates for the  
7 applicable facility expansion/reinforcement project. Similarly, Enbridge Gas will also  
8 determine the revenue requirement associated with each potential IRPA to compare  
9 against other IRPAs and facility alternatives. This approach provides transparency in  
10 comparing the costs of facility and non-facility alternatives and in quantifying projected  
11 incremental cost to ratepayers above the lowest cost alternative, should the OEB  
12 prioritize a more expensive alternative for other reasons.

13

14 It should be noted that cost/economics is only one factor to consider with respect to  
15 alternative selection. Given the OEB's role as an economic regulator, economics will  
16 normally play a central role in the decision process, even when not the sole determining  
17 factor. Reliability is also expected to play a role, in keeping with the OEB's statutory  
18 objective of protecting consumers with respect to reliability of gas service. The work  
19 done at this stage will confirm whether it is preferable to proceed with an IRPA.

20

1           **v) How will Enbridge Gas proceed with an IRP/IRPA?**

2       Once it is determined that an IRP/IRPA is preferable to an identified facility  
3       expansion/reinforcement project, Enbridge Gas will apply to the OEB for approval to  
4       recover the costs associated with that IRPA. This may be done in a rate application or  
5       as a separate stand-alone application. The application would outline the rationale for  
6       investment in IRPAs, the individual and overall costs of IRPAs, the proposed allocation  
7       and cost recovery methodologies proposed, and ongoing reporting and monitoring  
8       expectations. To provide some certainty of the effectiveness of IRPAs as early as  
9       possible, Enbridge Gas will maintain an IRP governance process to identify and, where  
10      possible, resolve flaws in the design or delivery of IRPAs, to evaluate the potential of  
11      new IRPAs and to report annually on any IRPA implemented.

12  
13           **vi) Cost recovery – treat IRPA investments as capital**

14      Enbridge Gas proposes that the costs associated with planning, implementing,  
15      administering, measuring and verifying IRPAs within an approved IRP be treated in a  
16      similar manner to the capital costs that they enable the utility and ratepayers to avoid.  
17      This will allow Enbridge Gas to earn a rate of return on investments on IRPAs  
18      consistent with its allowed rate of return on avoided capital investments in facility  
19      expansion/reinforcement projects.

20

1           **vii) Recognition of risk**

2    In this IRP Proposal, Enbridge Gas is requesting that the OEB determine that Enbridge  
3    Gas's decision to proceed with IRP, as set out in this IRP Proposal, is reasonable and  
4    appropriate. This is important because there is limited jurisdictional precedent for  
5    natural gas IRP across North America. The effectiveness of IRPAs in reducing peak  
6    demand to defer future system expansion/reinforcement projects in Ontario remains  
7    uncertain and untested. The implementation, measurement and verification of IRPAs  
8    will require Enbridge Gas to invest ratepayer funds on IRPAs in advance of the typical  
9    timing of expenditure on proven facility alternatives, exposing ratepayers to the risk of  
10   higher rate impacts should IRPAs not effectively reduce forecasted demand growth,  
11   forcing Enbridge Gas to apply for leave to construct facility expansion/reinforcement  
12   projects even though ratepayers have already paid for an IRPA. In that instance,  
13   ratepayers would bear the costs of both the IRPA and the facility expansion/  
14   reinforcement project required to ensure future demand growth is served.

15  
16           **viii) Monitoring and reporting**

17   To provide transparency of the effectiveness of IRPAs implemented, Enbridge Gas  
18   proposes that an annual IRP report ("IRP Report") should be included with its annual  
19   Deferral and Variance Account Disposition and Earnings Sharing applications beginning  
20   after the first IRPA/IRP is approved. The IRP Report will provide annual and cumulative  
21   summaries of actual peak period demand reductions/energy savings generated by each  
22   IRPA compared to the initial forecasted reduction/energy savings and the actual amount

1 of expenditure on each IRPA to-date. Table 13-2 provides a sample template of the  
 2 initial IRP Report.

3 **Table 13-2**  
 4 **Proposed Monitoring and Reporting Template**

Program	Annual Natural Gas Demand Reduction (GJ/m <sup>3</sup> )			Cumulative Natural Gas Demand Reduction (GJ/m <sup>3</sup> )	Cost (\$ million)			Cumulative Cost (\$ million)
	Forecast	Actual	Variance		Forecast	Actual	Variance	
<i>Sample</i>	5,000	5,000	0	5,000	1.1	1.1	0	

5  
 6 If the peak period demand reductions associated with an IRPA appears to be  
 7 underperforming relative to forecast, Enbridge Gas will assess whether another proven  
 8 or high-potential IRPA is available to replace it (both in terms of estimated ratepayer  
 9 cost and peak period demand reduction potential) and may need to shift funding to the  
 10 alternate IRPA with Board approval.

11  
 12 Enbridge Gas will also annually report on peak period demand in locations where IRP is  
 13 implemented to understand whether IRPAs have effectively reduced peak period  
 14 demand, and if not, when facility expansion/reinforcement projects may next be  
 15 required. ICF concludes, and Enbridge Gas concurs, that this will be challenging to do  
 16 with a high level of certainty until Enbridge Gas installs ultrasonic metering that can  
 17 measure peak hour consumption (see Section ix IRP enablement below for additional  
 18 detail). As ICF stated, “[t]he Gas Utilities will need regulatory approval to invest in and  
 19 recover the costs of the AMI necessary to collect hourly data on the impacts of DSM

1 programs and measures, as well as pilot programs necessary to determine the costs,  
2 impacts, and potential penetration rates for geo-targeted DSM programs.”<sup>13</sup>

3

4 **ix) IRP enablement**

5 The current lack of actual measured peak hourly data makes it difficult to understand  
6 the potential of IRPAs and will make it difficult to measure the effectiveness of IRPAs in  
7 reducing peak period demand going forward. This increases the risk and, potentially,  
8 the cost to ratepayers of investment in IRP.

9

10 At such time that Enbridge Gas begins to rely upon IRPAs to offset peak hourly period  
11 demands and to defer distribution system expansion/reinforcement projects, insight on  
12 actual hourly customer consumption data is necessary to ensure that DR and other  
13 IRPAs have delivered peak hour energy savings as forecasted. Access to this hourly  
14 data will enable Enbridge Gas to confidently report on the effectiveness of IRPAs to the  
15 OEB, will inform future investment in IRPAs by allowing Enbridge Gas to focus  
16 investments on the IRPAs with the highest potential to reduce peak period demand and  
17 will enable Enbridge Gas to shift funding from less effective IRPAs to new or more  
18 effective ones, as appropriate.

19

20 Enbridge Gas will bring forward in a separate proceeding a proposal that an AMI system  
21 be deployed across the legacy EGD rate zone and Union rate zones. The deployment

---

<sup>13</sup> Exhibit I.EGDI.SEC.1, Attachment 1, October 11, 2018, p. ES36.

1 of an AMI system, including ultrasonic meters, will allow for the collection of the hourly  
2 data that Enbridge Gas requires to not only target IRPAs effectively but also to monitor  
3 and verify their effectiveness to ensure that the IRPAs are performing as expected and  
4 to ensure peak period demand reductions are materializing.<sup>14</sup>

5

### 6 **3. IRP is Not a Viable Alternative to the Project**

7 Enbridge Gas has applied the IRP policy principles set out in this IRP Proposal to  
8 evaluate whether IRP could support the deferral or avoidance of the Project. The  
9 conclusion is that there is no cost-effective IRP (or set of IRPAs) that will reduce peak  
10 period demand to support the deferral or avoidance of the Project.

11

12 The results of the Enbridge Gas analysis (which is equivalent to the “stage 1” analysis  
13 described above) are set out in Table 13-3. This table includes a comparison of the  
14 costs of the Project to the high-level forecasted costs of relevant IRPAs. It is clear from  
15 this analysis that IRPAs are not cost-effective as compared to the Project, as is evident  
16 by comparing the normalized average cost of the Project to traditional DSM program  
17 alternatives and program alternatives included in the 2019 Integrated Ontario Electricity  
18 and Natural Gas Achievable Potential Study (“APS”). If IRPAs cost in the same range  
19 as traditional DSM programs or as set out in the APS, then the cost for IRPAs is  
20 substantially higher than the cost of the Project. In other words, it will cost more to defer  
21 or avoid the peak period demand being served by the Project than it will cost to

---

<sup>14</sup> Exhibit I.EGDI.SEC.1, Attachment 1, October 11, 2018, p. ES36.

1 complete the Project to serve that demand. That is particularly the case when one  
 2 considers that it is necessary to arrange for IRPAs to meet more than the total demand  
 3 served by the project (the ICF Study recommends that IRPAs cumulate to 121% of the  
 4 peak demand to be served by the infrastructure project being avoided or deferred).<sup>15</sup>

5  
 6 Based on this analysis, Enbridge Gas has not undertaken a detailed review of whether  
 7 there are viable IRPAs that would offset the design day demand to be served by the  
 8 Project. Based on knowledge of the industry and its customers, and as discussed at  
 9 Exhibit A, Tab 7, Enbridge Gas does not believe that sufficient opportunities exist that  
 10 could be implemented in time to defer or avoid the need for the Project.

11 **Table 13-3**  
 12 **Stage 1 Analysis of IRPAs vs. Project**

<b>Stage 1 Comparator</b>	<b>Capital/Incurred Cost</b>	<b>Capacity (GJ/d)</b>	<b>Estimated Annual Cost</b>	<b>Normalized Annual Cost (\$/GJ)</b>
<b>Project</b> <i>(Kirkwall to Hamilton Pipeline)</i>	\$203,526,396	92,174	\$10,618,935	\$115.21
<b>Traditional DSM<sup>16</sup></b>				
Residential	\$ 55,550,997	11,141	\$5,240,354	\$470.38
Commercial	\$18,761,546	7,291	\$1,769,854	\$242.74
Industrial	\$14,472,475	5,076	\$1,365,248	\$268.95
<b>APS</b>				
Residential	\$464,667,639	39,050	\$43,834,008	\$1,122.52
Commercial	\$437,960,711	25,476	\$41,314,634	\$1,621.70
Industrial	\$339,662,150	13,545	\$32,041,727	\$2,365.56

<sup>15</sup> Exhibit I.EGDI.SEC.1, Attachment 1, October 11, 2018, p. ES18.

<sup>16</sup> Based on 2016 DSM program year OEB-approved verified costs and energy savings.

1 In addition to the analytics provided above, Enbridge Gas has relevant information on  
2 several IRPAs that would be appropriate to consider in comparison to future facility  
3 expansion/reinforcement projects. These IRPAs include air source heat pumps,  
4 geothermal systems, and in-situ furnace replacements. Electric air source heat pumps  
5 cost on average \$3,000 - \$5,000 and have an estimate measure life of 20 years. Each  
6 installation of air source heat pumps has the potential to reduce average annual  
7 demand by 73 GJ for space heating. Residential geothermal systems cost on average  
8 \$20,000 to \$30,000 depending on a variety of factors and have a measure life of 20  
9 years for the heat pump component and 40 years for the pipeline component. Each  
10 installation of residential geothermal systems has the potential to reduce average  
11 annual demand by 73 GJ for space heating and 89 GJ for space and water heating  
12 combined. Enbridge Gas also believes that there may be an opportunity for a furnace  
13 replacement program given the large percentage of homes (~45% according to the  
14 IESO<sup>17</sup>) with mid and low efficiency furnaces in place. Outside of the DSM construct,  
15 there may be an opportunity to target those low and mid efficiency furnaces for  
16 replacement with high efficiency furnaces. Transitioning to high efficiency furnaces has  
17 the potential to reduce base load and peak period demand. In general, each installation  
18 of a new high efficiency furnace would cost \$3,000 to \$5,000, depending on installation  
19 complexity, and has the potential to reduce average annual demand by 12 GJ.

20

---

<sup>17</sup> IESO's Residential End Use Survey. Page 15 (Table 13).

**Table 13-4**  
**Low Carbon Technology Alternatives**

<b>Commercialized Technology</b>	<b>Annual Natural Gas Savings (GJ)</b>	<b>Peak Day Savings (GJ/day)</b>	<b>Annual Emissions Savings (tCO<sub>2e</sub>)</b>
Electric Air Source Heat Pump	73 (space heating only)	~0.95	3.7 (space heating only)
Geothermal – heating and cooling (residential application)	73 (space heating only) 89 (space and water heating)	~0.95 (space heating only) ~1 (space heating and water heating)	3.7 (space heating only) 4.5 (space heating and water heating)
Forced Air Natural Gas Furnace <sup>18</sup>	12	~0.15	0.6

3

4 It is important to note that the implementation of either an electric air source heat pump

5 or an electric heat pump via a geothermal installation will result in higher electrical

6 loads. Although these solutions do reduce natural gas demand at site and may defer

7 traditional facility projects, they may have unintended consequences on the electrical

8 transmission and/or distribution system(s). If large numbers of customers switch to

9 either electric air source heat pumps or electric heat pumps, additional stresses may be

10 realized on the electrical grid. Furthermore, incremental electrical requirement on the

11 grid will very likely increase the marginal electricity produced from the central gas power

12 plants, thereby shifting the residential gas load to the central power plants. This further

13 supports the requirement for collaboration between the electrical and natural gas utilities

14 to ensure long term sustainable approaches to IRP.

15

---

<sup>18</sup> Assumed current efficiency = 0.8; Assumed upgraded efficiency = 0.95.

1 **4. Conclusion**

2 As demonstrated in Section 3 above and at Exhibit A, Tab 7, considering the nature and  
3 timing of design day demands driving the need for the proposed Kirkwall to Hamilton  
4 pipeline, there are no viable IRPAs to avoid or defer the Project. Stated another way,  
5 the OEB's consideration of a broader IRP framework should not cause any delay to the  
6 Project. Enbridge Gas nonetheless remains committed to considering IRPAs following  
7 the identification of potential need for future facility expansion/reinforcement projects in  
8 the AMP process.

9

10 It is also appropriate that the OEB consider Enbridge Gas's application of this IRP  
11 Proposal in relation to future Enbridge Gas projects now, as a first step towards the  
12 creation of actionable IRP plans, including:

- 13 (i) The pursuit of IRPAs that have the potential to reduce peak period demand;
- 14 (ii) The establishment of fundamental attributes of and screening criteria for  
15 IRPAs;
- 16 (iii) Confirmation that non-gas alternatives can be considered as IRPAs;
- 17 (iv) The establishment of a two-stage screening process of future facility  
18 expansion/reinforcement projects to determine the feasibility of IRPs/IRPAs;
- 19 (v) The intent to seek OEB approval of, including cost recovery of, IRPs/IRPAs  
20 through separate applications or in annual rates applications;
- 21 (vi) Treatment of the costs associated with IRPs/IRPAs in a similar manner to the  
22 avoided capital investments in facility expansion/reinforcement projects that

1           they enable the utility and ratepayers to avoid allowing Enbridge Gas to earn  
2           a rate of return on investments consistent with its allowed rate of return;

3       (vii)   Recognition that ratepayers will bear the risk and subsequent cost of  
4           investment in OEB-approved investment in IRPs/IRPAs by Enbridge Gas if  
5           peak period demand reductions are not realized as forecast;

6       (viii)   Annual monitoring and reporting on the effectiveness of IRPs/IRPAs  
7           implemented; and

8       (ix)    IRP enablement through the installation of AMI.

9

10   Following a determination by the OEB that the IRP Proposal is reasonable and  
11   appropriate, Enbridge Gas will be able to develop specific IRP proposals for future OEB  
12   applications to defer or avoid facility expansion/reinforcement projects through reduction  
13   of peak period demands.