

December 14, 2015

BY COURIER & RESS

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
Toronto, ON M4P 1E4

Dear Ms. Walli:

RE: EB-2015-0179 – Union Gas Limited (“Union”) – Community Expansion – Evidence Update

Please find attached Union’s updated (black-lined) evidence in the above case. This update will be filed in RESS and copies will be sent to the Board.

The evidence update reflects the following updates:

1. Removal of the Walpole Island First Nations Project from Union’s Community Expansion Proposals. The Walpole Island First Nations Project is proceeding with the support of Federal funding, under the Board’s E.B.O. 188 guidelines, at a P.I. of 0.8. As a result, the Project no longer requires Union’s Community Expansion Proposals to make it economically feasible. The removal of this Project results in a capital cost reduction of approximately \$1 million.
2. Impacts resulting from further costing and economic analysis completed on a potential expansion project to the Kincardine area. The result of this analysis is a further capital cost reduction of approximately \$14 million (\$80 million to \$66 million).
3. The updates noted above result in a \$15 million reduction to the overall capital cost of Union’s Community Expansion proposal (\$150 million to \$135 million). The Opportunity Assessment Summary (Appendix D) and project revenue requirement Appendices have been updated to reflect this \$15 million reduction.

The interrogatory responses filed by Union on December 9, 2015 reflected these updates.

If you have any questions with respect to this submission please contact me at 519-436-5476.

Yours truly,

[original signed by]

Chris Ripley
Manager, Regulatory Applications

Encl.

c.c.: EB-2015-0179 Intervenors
Charles Keizer, Torys

ONTARIO ENERGY BOARD

IN THE MATTER OF the Ontario Energy Board Act, 1998, S.O. 1998, c.15, Schedule B, and in particular S. 36 thereof;

AND IN THE MATTER OF the Ontario Energy Board Act, 1998, c.15, Schedule B, and in particular, S. 90 thereof;

AND IN THE MATTER OF an Application by Union Gas Limited for an Order or Orders for approval of Union's Distribution System Expansion Project proposals;

AND IN THE MATTER OF an Application by Union Gas Limited for an Order or Orders granting leave to construct natural gas pipelines and ancillary facilities required to serve the communities of Milverton, Prince Township and, the Chippewas of Kettle and Stony Point First Nation and Lambton Shores.

APPLICATION

1. Union Gas Limited ("Union") is a business corporation incorporated under the laws of the province of Ontario, with its head office in the Municipality of Chatham-Kent.
2. Union conducts both an integrated natural gas utility business that combines the operations of distributing, transmitting and storing natural gas, and a non-utility storage business.
3. Union's Community Expansion Project proposals are in direct response to the Ontario Energy Board's ("the Board") initiative to address the Ontario government's desire to expand natural gas distribution systems to communities that currently do not have access

to natural gas. Union's proposals are designed to address two distinct distribution system expansion project types:

- i. Community Expansion Project – system expansion project that will provide first-time natural gas service to a minimum of 50 potential customers; and,
- ii. Small Main Extension Project - all other forms of distribution expansion that provide first-time natural gas access to customers.

4. Union hereby applies to the Board for:

- a. An order approving a temporary expansion surcharge ("TES") rate for Community Expansion Projects.
- b. An order approving an incremental tax equivalent ("ITE") mechanism to collect municipal contributions.
- c. An order approving an exemption from the Board's E.B.O. 188 that would allow individual Community Expansion Projects to proceed at a profitability index ("PI") of 0.4 or greater.
- d. An order approving an exemption of Community Expansion Projects from the Board's E.B.O. 188 Investment Portfolio and Rolling Project Portfolio requirements.
- e. An order approving a capital pass-through mechanism to incorporate the Community Expansion Projects in rates immediately following their in-service dates.
- f. An order approving accounting orders to establish a Community Expansion Capital Pass-Through Deferral Account and a Community Expansion Contribution Deferral Account.
- g. An order approving rate recovery of the net revenue requirement for four Community Expansion Projects: Milverton; Prince Township; Chippewas of Kettle and Stony Pont First Nation and Lambton Shores; and, Delaware Nation of Moraviantown.
- h. An order granting leave to construct approval for the natural gas pipelines and ancillary facilities required to serve the communities of Milverton; Prince Township; and, the

Chippewas of Kettle and Stony Point First Nation and Lambton Shores.

- i. An order approving a temporary connection surcharge (“TCS”) rate for main extension projects that are smaller and do not meet the Community Expansion Project criteria as identified in the written evidence that supports this application.
5. Union further applies to the Board for all necessary orders and directions concerning pre-hearing and hearing procedures for the determination of this application.
6. This application is supported by written evidence which may be amended from time to time as circumstances may require.
7. The persons affected by this application are the customers resident or located in the municipalities, police villages and First Nations reserves served by Union, together with those to whom Union sells gas, or on whose behalf Union 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.
8. The address of service for Union is:

Union Gas Limited

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

Attention:	Chris Ripley Manager, Regulatory Applications
Telephone:	(519) 436-5476
Fax:	(519) 436-4641

- and -

Torys

Suite 3000, Maritime Life Tower
P.O. Box 270
Toronto Dominion Centre
Toronto, Ontario
M5K 1N2

Attention:	Charles Keizer
Telephone:	(416) 865-7512
Fax:	(416) 865-7380

DATED July 23, 2015.

UNION GAS LIMITED

[Original signed by]

Chris Ripley
Manager, Regulatory Applications

EXPANSION OF NATURAL GAS DISTRIBUTION – UNION GAS

The purpose of this evidence is to respond to the Ontario Energy Board's ("OEB" or "the Board") initiative to address the Ontario government's goal of ensuring that "*Ontario consumers in communities that currently do not have access to natural gas are able to share in affordable supplies of natural gas.*"¹ The proposal and evidence is also consistent with the Minister of Energy's letter to the Board Chair dated February 17, 2015, as found at Appendix A.

The Ontario government's desire to expand natural gas distribution systems, which will increase natural gas use, is inconsistent with their recently announced intent to implement a cap and trade program whose objective is to significantly reduce the use of natural gas. While Union supports its Community Expansion proposals as filed in this application, the ultimate degree to which any approved regulatory flexibility is used will depend on reconciling these two opposing government policy positions.

Union Gas Limited ("Union") is making two proposals to address two distinct distribution system expansion project types:

- Community Expansion Project - a natural gas system expansion project which will provide first time natural gas system access where a minimum of 50 potential customers

¹ Excerpt from Board's February 18, 2015 letter re: Expansion of Natural Gas Distribution – per Appendix A,

1 in homes and businesses already exist, for which minimum economic feasibility
2 guidelines permit a Profitability Index (“PI”) of less than 1.0; and,

- 3 • Small Main Extension Project - all other forms of distribution expansion which provide
4 first time natural gas system access to customers. These projects include the extension of
5 mains and related service attachments, and service lines to individual commercial and
6 industrial customers off existing mains.

7
8 Specifically, Union is seeking approval of the following nine items:

9
10 **Community Expansion Project Proposal**

- 11 1. A Temporary Expansion Surcharge (“TES”) rate for Community Expansion Projects;
- 12 2. An Incremental Tax Equivalent (“ITE”) mechanism to collect municipal contributions;
- 13 3. An exemption from E.B.O. 188² that would allow individual Community Expansion
14 Projects to proceed at a PI of 0.4 or greater;
- 15 4. An exemption of Community Expansion Projects from E.B.O. 188 Investment Portfolio
16 and Rolling Project Portfolio requirements;
- 17 5. A capital pass-through mechanism to incorporate the Community Expansion Projects in
18 rates immediately following their in-service dates;
- 19 6. Accounting orders to establish a Community Expansion Capital Pass-through Deferral
20 Account and a Community Expansion Contribution Deferral Account;

² E.B.O. 188 – OEB Generic Proceeding Decision that provides the underlying principles for natural gas distribution system expansion.

1 7. Rate recovery of the net revenue requirement for four projects:

2 a. Milverton

3 b. Prince Township

4 c. Chippewas of Kettle and Stony Point First Nation and Lambton Shores

5 d. Delaware Nation of Moraviantown

6 8. Leave to construct (“LTC”) approval for facilities required to serve the communities of
7 Milverton, Prince Township, and the Chippewas of Kettle and Stony Point First Nation
8 and Lambton Shores.
9

10 **Small Main Extension Project Proposal**

11 9. A Temporary Connection Surcharge (“TCS”) rate for smaller main extension projects.
12

13 The parameters of Union’s proposals have been set to achieve the following objectives:

14 1. To maximize the number of new communities to receive natural gas service without
15 the use of provincial funding support, and

16 2. To limit the rate impacts on existing customers to a maximum approximating \$2 per
17 month (\$24 per year) over the multi-year expansion program.
18

19 Under Union’s proposal, Union could complete approximately 29 projects to provide natural gas
20 service to approximately 18,000 homes and businesses in 34 communities, including seven First
21 Nations, at a total cost of approximately \$135 million.

1

2 The bill impact of these 29 projects for the average Rate M1 residential customer in Union South
3 consuming 2,200 m³ per year is an increase of approximately \$3 to \$4 per year. For the average Rate
4 01 residential customer in Union North consuming 2,200 m³ per year, the bill impact is an increase of
5 less than \$1 per year. The bill impacts for the average Rate M1 and Rate 01 residential customers are
6 provided at Appendix M Updated.

7

8 The evidence is structured into three separate Tabs:

9 Tab 1 - Community Expansion Project Proposal

10 Tab 2 - Community Expansion Project Details for the Four Proposed Projects

11 Tab 3 - Small Main Extension Project Proposal

12

COMMUNITY EXPANSION PROJECT PROPOSAL

1. INTRODUCTION

In a letter dated February 18, 2015, the Board invited parties to file proposals designed to support its “*expansion of natural gas distribution*” initiative. A copy of the letter is filed at Appendix A.

Union’s Community Expansion proposal (“the Proposal”) supports the provincial policy goal of providing customers in underserved communities with more energy choices. Union’s Proposal is made in response to the Ministry direction and the Board’s February 18, 2015 letter which stated:

“ The Provincial Government of Ontario has set out a goal of ensuring that Ontario consumers in communities that currently do not have access to natural gas are able to share in the affordable supplies of natural gas. In an effort to facilitate enhanced access to natural gas for rural and remote communities and businesses in the province, the Ontario Energy Board (the “Board”) is inviting parties with the appropriate financial and technical expertise to propose one or more plans for natural gas expansion.

In this context and depending on the nature and scope of any proposals made, the Board is aware that regulatory flexibility may be required.”

1 In response to this invitation, the intent of Union's Proposal is to enable expansion of its
2 infrastructure to provide natural gas to communities that would otherwise not receive natural gas
3 service.

4
5 Union's Proposal is guided by a set of principles designed to recognize those who are impacted
6 by or benefit from expansion of Union's natural gas system. The Proposal strikes a balance of
7 impacts on the various parties based on benefits received:

8 1. Customers and municipalities who directly benefit from Community Expansion

9 Projects should contribute to the financial viability of the project.

10 2. Expansion customer contributions to project feasibility should be commensurate with
11 the savings achieved by switching to natural gas.

12 3. Moderate cross subsidization from existing customers is acceptable, provided long term
13 rate impacts are reasonable.

14 4. Natural gas distributors should not be exposed to financial risk related to the
15 incremental new community capital investments.

16
17 Glossary of Terms

18 A glossary of terms is provided at Appendix B.

19

1 **2. E.B.O. 188 BACKGROUND**

2 On July 31, 1995, the Board initiated a generic hearing regarding distribution system expansion
3 for all natural gas utilities in Ontario. The proceeding was given Board File No. E.B.O. 188.

4
5 E.B.O. 188 addressed three main topics specific to distribution system expansion³:

- 6 • Should financial feasibility be the only criteria? If not, what else?
- 7 • What level of financial subsidy should be applied to system expansions?
- 8 • Should a portfolio of projects be used or should it be project specific? How would a
9 portfolio be defined?

10
11 The Board issued its *EBO 188 Final Report of the Board* and the *Ontario Energy Board*
12 *Guidelines for Assessing and Reporting on Natural Gas System Expansion in Ontario* on January
13 30, 1998. Since then the overall feasibility of distribution expansion projects has been
14 determined using the criteria and methodology set out in E.B.O. 188. A copy of the final report is
15 included at Appendix C.

16
17 A key finding in the Board decision, as detailed in Section 2 of the final report, is support for the
18 use of a portfolio approach rather than assessing projects on a project-by-project basis. This
19 approach allows more marginal customers to be served, particularly in those communities where

³ Distribution business includes extension of gas service to new customers who do not currently have access to natural gas in all market segments, as well as areas currently served by natural gas including new residential, multi-family and commercial/industrial developments and miscellaneous in-fill projects.

1 obtaining gas service would not have been financially feasible on a “stand alone” basis. In
2 essence, the decision supports an approach that facilitates the expansion of natural gas service
3 while adhering to a key principle that existing ratepayers ultimately be held harmless from rate
4 impacts resulting from the cost of new connections.

5
6 E.B.O. 188 contemplates the use of two portfolios – the Investment Portfolio (“IP”), and the
7 Rolling Project Portfolio (“RPP”). The IP includes all distribution business projects necessary to
8 attach any customers of all rate classes in a given test year. An annual Normalized
9 Reinforcement Amount is added to the year’s costs to mitigate the impact of large
10 reinforcements in any one year. The Board set a minimum IP target PI of 1.1 to provide a safety
11 margin to minimize adverse impacts resulting from forecast error.

12
13 The RPP excludes in-fill⁴ customers but includes all customers forecasted to attach to a new
14 system in future years as well as the Normalized Reinforcement Amount identified in the IP. The
15 minimum target for the Rolling Project Portfolio is a Net Present Value (“NPV”) of zero, which
16 corresponds to a PI of 1.0.

17
18 Although the key principle which underlies the E.B.O. 188 decision has served the industry and
19 most ratepayers well, it was implemented during a period that preceded the recent provincial
20 policy goal of providing customers in underserved communities more energy choices.

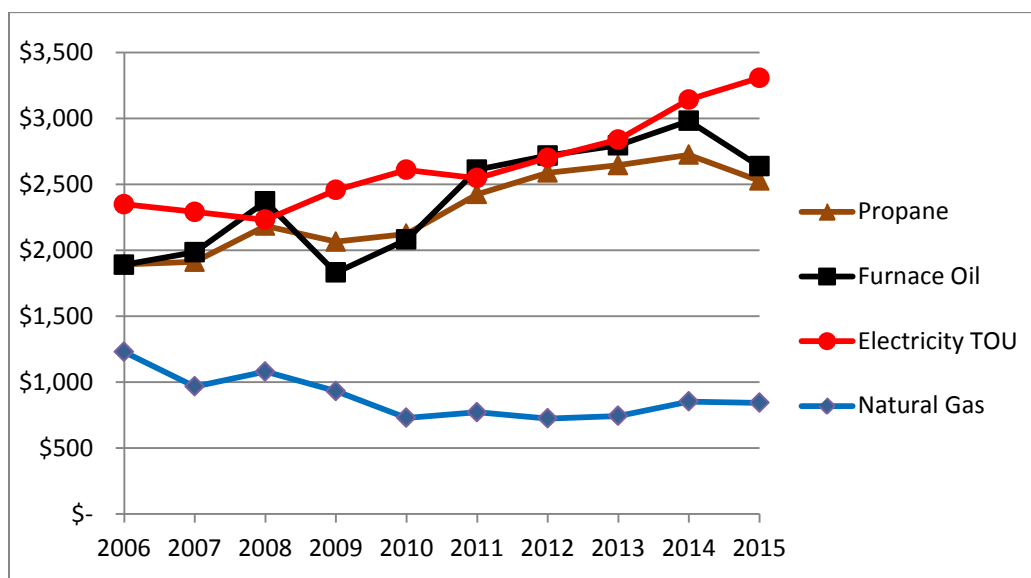
⁴ In-fill customers are customers being attached to existing natural gas service mains.

3. MARKET BACKGROUND

Competitive Landscape - Increasing Relative Value of Natural Gas

The estimated annual energy costs for a home using 2,200 m³ of natural gas (equivalent to 82 GJ of energy) for heating and water heating sourced from differing energy sources in Ontario is shown in Figure 1.

Figure 1
Estimated Annual Cost of Energy⁵



Since 2006, the annual cost of electricity, oil, and propane has increased by an average of 38%.

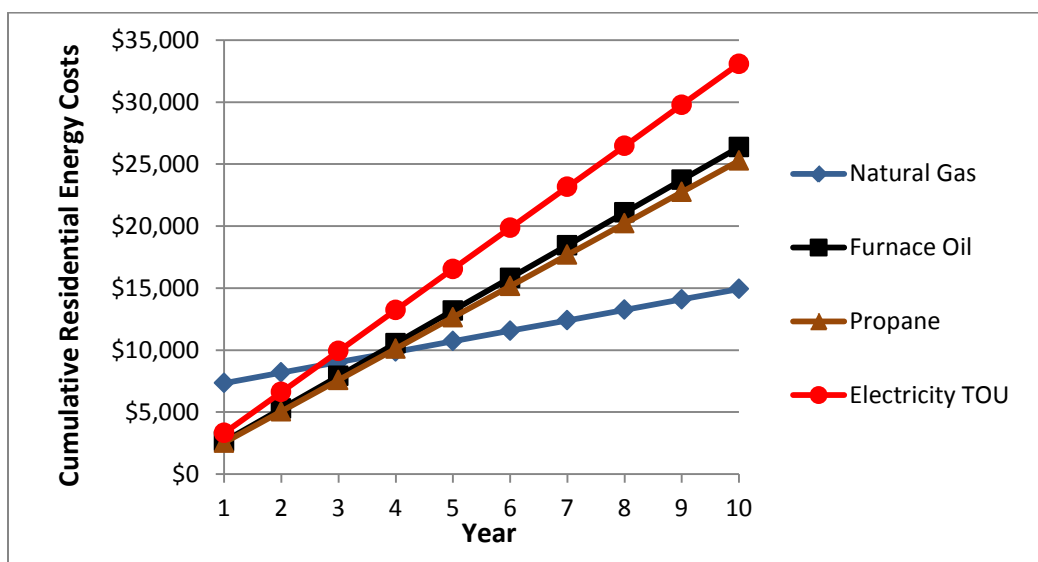
During this same time period, the price of natural gas has decreased by 31%, primarily as a result

⁵ Based on April 2015 Union Gas cost comparisons including all volumetric and fixed charges appearing on consumer energy bills, with data sourced from: The Kent Group for propane and heating oil (rates for London and Thunder Bay); OEB time of use rates and utility specific charges (rates for London and Thunder Bay); and Union Gas rate schedules. All figures based on 2,200 m³ of residential consumption for home heating and water heating.

of abundant, lower-priced supplies located closer to Ontario becoming available. The result of these opposing trends is a price advantage of using natural gas over the lowest cost alternative energy that has increased from \$660 annually in 2006, to \$1,680 in 2015. These increasing savings have resulted in increasing interest from consumers in having access to natural gas.

Figure 2 shows the cumulative energy costs a typical residential customer can experience if converting to natural gas. The natural gas cost estimate for year one includes the estimated cost of replacement of existing equipment, or conversion of equipment to natural gas, at a cost of \$4,000 and assumes an up-front customer contributions-in-aid-of-construction (“CIAC”) payment of \$2,500.

Figure 2
Cumulative Comparison of Energy Costs When Converting to Natural Gas



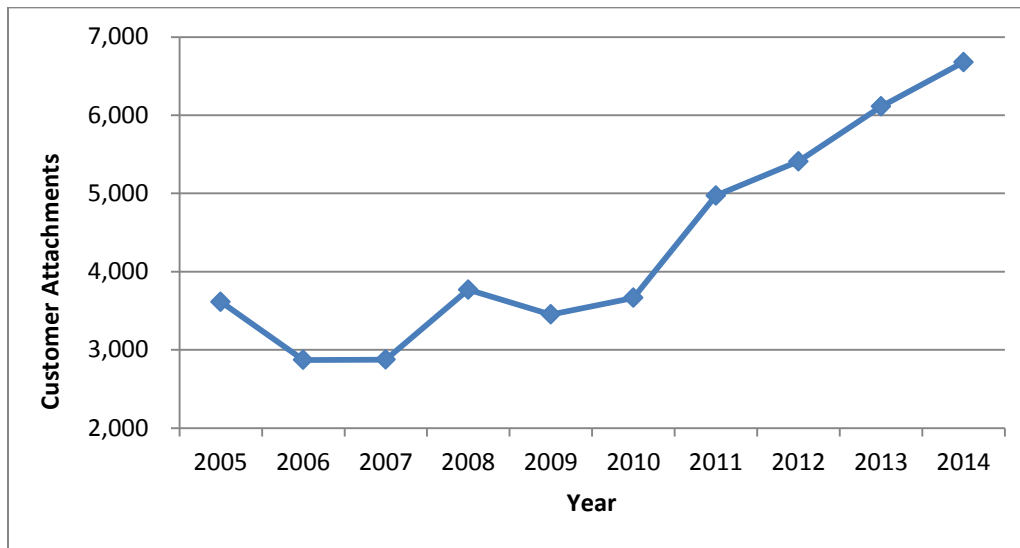
1 As shown in Figure 2, conversion to natural gas from other energy sources provides significant
2 savings to customers. A typical conversion customer will have a return on initial investment
3 within approximately four years, and then have energy cost savings beyond year four. These
4 savings are expected to build to between \$10,000 and \$18,000 over a decade.

5
6 Conversion Customer Attachments

7 Union's distribution business now serves about 1.4 million residential, commercial and industrial
8 customers in more than 400 communities.

9
10 Over the past 10 years, Union has attached over 43,000 customers within its franchise area who
11 converted their home or business to natural gas from other fuels. Figure 3 shows the number of
12 conversions increasing over the past few years as prices for other forms of home energy
13 increased.

Figure 3
Conversion Customer Additions by Year



This recent trend provides evidence of increasing interest from consumers in switching to natural gas. By 2014, the proportion of conversions increased to 32% of the 21,000 annual new attachments to Union’s system. Despite the increasing number of conversion customer attachments, very few of these customer attachments were in “new-to-gas” communities. In the past decade Union has only expanded to one new community requiring Board facilities approval, Red Lake.

1 Community Economic Benefits

2 In addition to individual customer benefits, the economic benefits natural gas can provide a
3 community are also significant. Such benefits include:

- 4 • residential energy savings enabling more consumer spending at local businesses and across
5 the community (e.g. charitable organizations);
- 6 • energy savings support ability of local businesses to remain competitive;
- 7 • enhanced ability to attract new residents and new businesses to the community;
- 8 • increased home values and resulting property tax assessments;
- 9 • municipal energy cost savings in municipal buildings such as arenas and community
10 centres; and,
- 11 • local heating, ventilation and air conditioning (“HVAC”) and plumbing businesses benefit
12 from the purchase and installation or conversion of heating and water heating equipment.

13
14 A video prepared following completion of the Red Lake project in 2012 provides further insight
15 into the benefits natural gas can provide from the perspective of community members. The video
16 can be referenced at the following web site:

17 <https://www.youtube.com/watch?v=qLqosnmkcA8>
18

19 Community Expansion Opportunity Assessment

20 Recognizing these benefits as well as the increased desire to use natural gas, Union has been
21 approached by several municipal and provincial representatives to explore ways to expand
22 natural gas infrastructure to additional rural and remote communities.

1
2 In response to this increased interest, Union initiated an Opportunity Assessment in 2014 to
3 better understand the potential scale of a broader community expansion effort, as well as to
4 determine what mechanisms could be implemented to mitigate any barriers to such expansion.
5 This assessment identified any un-serviced towns, villages or hamlets from which municipal
6 personnel or potential customers had inquired about natural gas service.

7
8 Through this Opportunity Assessment, Union identified a total of 103 potential projects that, if
9 undertaken, would provide natural gas access to over 43,000 homes and businesses in 138
10 communities. Details of the potential projects identified are provided at Appendix D Updated. To
11 develop feasibility estimates for the projects, Union applied a series of high level assumptions
12 related to key economic modelling inputs. A summary of the assumptions underlying the
13 assessment is also included in Appendix D Updated.

14
15 The results include a broad range of community sizes. From an economic feasibility perspective,
16 project PI's, prior to including any additional customer contributions, ranged from a high of 0.44
17 to a low of 0.02. The main factors behind this range of PI's are the distance of the community
18 from the existing natural gas distribution system, and the capacity of the existing pipeline system
19 at point of connection to supply the expected load. The CIAC per forecasted customer
20 attachment required to make the projects economically feasible at a PI of 0.8 ranged from as low
21 as \$1,500 for the most feasible project, to well over \$10,000.

Under Union's Proposal highlighted in Section 4, Union could complete approximately 29 projects that would provide natural gas service to approximately 18,000 homes and businesses in 33 communities, including 6 First Nations. Additional funding or financial contributions would be required to service the remaining communities identified in the Opportunity Assessment.

4. COMMUNITY EXPANSION PROPOSAL

Introduction

Union's Community Expansion Proposal consists of the following components:

- 4.1 A Temporary Expansion Surcharge to collect customer contributions;
- 4.2 An Incremental Tax Equivalent mechanism to collect municipal contributions;
- 4.3 An exemption from the requirements of E.B.O. 188 to allow lower individual project minimum PI thresholds;
- 4.4 An exemption of Community Expansion Projects from E.B.O. 188 Investment and Rolling Project Portfolio requirements;
- 4.5 A Capital Pass-Through Mechanism; and,
- 4.6 A Community Expansion Capital Pass-through Deferral Account and a Community Expansion Contribution Deferral Account.

4.1. Customer Contributions: Temporary Expansion Surcharge

Description

1 Union proposes the introduction of a single, volumetric-based Temporary Expansion Surcharge
2 (“TES”), to provide a mechanism for customers to dedicate a portion of their annual savings
3 toward natural gas system expansion feasibility. When customers served by Community
4 Expansion Projects convert to natural gas, they will pay the TES for a defined period of time to
5 contribute to the cost of the project.

6
7 The TES will appear to customers as an extra line item on each monthly bill, labelled
8 “*Temporary Expansion Surcharge*”. Potential customers will be informed of the details of this
9 charge as a Community Expansion Project is developed, as well as at the time their application to
10 Union for service is made. For customers who wish to equalize their monthly payments, Union’s
11 equal billing plan will be extended to the TES.

12
13 As noted in Section 4.6, the surcharge revenue received from customers in expansion
14 communities will be collected in a deferral account and disposed of annually to ratepayers.

15
16 The proposed TES provides a means of satisfying the principle that those that benefit from
17 expansion should bear a share of the costs, as well as the principle that customer contributions to
18 project feasibility be commensurate with the savings they achieve by switching from other
19 energy sources to natural gas. For example, a large commercial building using 50,000 m³ of
20 natural gas each year will achieve significantly greater annual savings from fuel-switching than a

1 typical residential customer, and consequently the large commercial building owner can afford to
2 make a larger contribution to project feasibility.

3
4 *Community Expansion Barriers Addressed Through TES*

5 There are three barriers to community expansion being addressed with the TES component of
6 Union's proposal. They include:

- 7 • the economic feasibility of Community Expansion Projects;
8 • the initial financial burden presented by the traditional up-front CIAC mechanism; and,
9 • potential customers delaying the decision to convert as a means of avoiding up-front
10 CIAC payment.

11
12 The TES provides a means for expansion customers to financially support a project. The TES, in
13 combination with other components of Union's Proposal, helps to address the economic shortfall
14 that has been a key barrier in preventing natural gas service expansion to many communities.

15 Although many customers are willing to make an additional financial contribution to gain access
16 to natural gas, the magnitude of this additional contribution often creates a significant economic
17 barrier for customers.

18
19 An additional barrier is the CIAC mechanism applying only to those customers who attach in the
20 year a project goes into service. Customers who delay attaching until future years can avoid
21 paying their share of the CIAC. As proposed, the TES mitigates the incentive for customers to

1 delay connection by ensuring all customers who attach during the TES period associated with the
2 project feasibility analysis pay the TES.

3
4 *Applicability*

5 The TES will be applied to potential general service (Rates M1, M2, 01, 10) customers attaching
6 to systems installed as part of Community Expansion Projects, where a contribution from
7 customers in excess of \$500 each is required to make a project economically feasible. The TES
8 will apply to all general service customers who attach to the system being constructed until the
9 TES term for the project expires.

10
11 Union is not proposing that the TES be made available to contract customers (Rates M4, M5,
12 M7, T1, T2, 20, 100). Contract customers can elect other means to make required financial
13 contributions over an extended time period. For example, a contract customer can elect to take a
14 longer-term contract, or contract for a higher minimum annual volume (“MAV”) and pay the
15 associated costs if annual consumption is below their MAV each year rather than pay an upfront
16 CIAC.

Rate

Union proposes that the TES be set at \$0.23 per m³. This amount is based on a typical residential customer achieving a payback period of less than 4 years on the cost of equipment conversion or replacement. On average, a residential customer can save over \$1,600 per year by converting to natural gas, as estimated in Table 1.

Table 1
Annual Residential Energy Savings Estimates⁶

Competing Energy Source	Penetration	Union South	Union North
Oil	35%	\$1,886	\$1,512
Wood	28%	\$813	\$813
Electric	22%	\$2,303	\$2,082
Propane	15%	\$1,679	\$1,696
Weighted Average⁷	100%	\$1,646*	\$1,469*

To achieve these savings, customers will need to replace or convert the equipment in their home so it can be fuelled by natural gas. Union has estimated the average equipment conversion costs for differing types of heating equipment as shown in Table 2.

⁶ Current penetration based on Union Gas 2011 Market Share Study, focussed on non-gas residential consumers residing in area codes in which natural gas infrastructure exists. Annual savings available from switching to natural gas from fuel oil, electricity or propane based on Figure 1, adjusted to exclude electric fixed monthly charges, and wood pricing based on \$271 in annual savings each from 3 separate 500 square foot rooms for 330 hours per year.

⁷ Using Union's general customer distribution of 75% south and 25% north, franchise wide average savings are \$1,602

Table 2
Estimated Heating Equipment Conversion/Replacement Costs⁸

Heating Equipment and Fuel	Distribution	Estimated Conversion Cost	Assumptions
Oil Boiler	32%	\$4,200	\$4,000 + \$200 to remove oil tank
Oil Forced Air	3%	\$4,200	\$4,000 + \$200 to remove oil tank
Propane Boiler	1%	\$4,000	
Propane Forced Air	12%	\$1,525	75% can be converted at \$700; remainder replaced at \$4,000
Propane Space Heater	2%	\$3,500	Replaced with a fireplace
Electric Baseboard	6%	\$11,000	
Electric Forced Air	12%	\$4,000	
Electric Heat Pump /Hydronic	4%	\$4,000	
Wood (assumed wood stove)	28%	\$3,500	Replaced with a fireplace
Weighted Average	100%	\$4,068	

The TES rate of \$0.23 per m³ is based on a desired payback period of 3.75 years. Based on annual savings averaging \$1,600 and one-time costs of \$4,068 for equipment conversion, a customer who converts to natural gas would in total save \$1,932 over the 3.75 years if there was no additional financial support required to make system expansion feasible. This equates to annual savings of \$515 for the first 3.75 years. Given an annual consumption of 2,200 m³, this \$515 equates to \$0.234 per m³. Please see Appendix E for the calculation of the proposed \$0.23 per m³ TES.

⁸ Equipment distribution based on Union Gas 2011 Market Share Study focussed on non-gas residential consumers residing in area codes in which natural gas infrastructure exists.

1 A TES of \$0.23 per m³ equates to an annual cost of \$506 for an average home using 2,200 m³
2 each year. After the initial payback period the customer would see annual savings of over \$1,100
3 until the TES is terminated, increasing to over \$1,600 each year after that.

4
5 The TES will allow a customer to contribute to the project while still achieving savings in years
6 1 to 4. The savings, coupled with the increased level of savings after year 4, are compelling
7 enough that a large number of customers would convert to natural gas. Union undertook market
8 surveys in Milverton and Prince Township to test this conclusion. Over 74% of the 327 potential
9 customers contacted indicated they were likely to convert to natural gas after considering
10 potential equipment conversion costs and including a TES costing in the range of \$450 per year
11 for up to 10 years.

12
13 *Term*

14 The length of time the TES will be applied will vary from project to project based on the period
15 of time required to reach the minimum PI for each project. The maximum time period for any
16 given project will be 10 years, commencing when the project goes into service. Every general
17 service customer who connects to the system will be subject to the TES from the date of their
18 connection until the end of term. At the end of the term, the TES will be terminated for every
19 customer attached to the project, regardless of when the customer connected to the project.

1 For example, the Milverton project proposed in Exhibit A, Tab 2, includes a TES term set at 48
2 months, given the volumes driven by the attachment forecast for that project. For the first 48
3 months after the system to supply Milverton is put in service, every customer who attaches will
4 pay the TES. In month 49, the TES will be terminated and customers served through that project
5 will no longer see the related TES line item on their monthly gas bill.

6
7 Within a specific Community Expansion Project, customers with similar annual volumes will
8 pay differing contributions to project feasibility through this mechanism, depending on when
9 they connect to the system. For example, for a project with an eight-year term, a customer who
10 attaches to the system as soon as it goes into service will pay for the full eight years, whereas a
11 customer who attaches at the end of year seven would only pay the TES for one year. Although
12 this may create the perception of an inequity at a customer level, this treatment is aligned with
13 the principle that customer contributions to project feasibility should be commensurate with the
14 savings they achieve by switching from other energy sources to natural gas. The customer who
15 connects in year one in this example will achieve annual savings averaging \$1,100 (net of the
16 TES) for the full eight-year period, whereas the customer who switches in year seven will only
17 save \$1,100 for a single year.

18
19 As noted in Section 4.6, Union will capture the TES revenue from Expansion Community
20 municipalities in a deferral account to be disposed of annually to ratepayers.

21

1 4.2 Municipal Contributions: Incremental Tax Equivalent

2 *Description*

3 Union proposes the introduction of a municipal contribution mechanism, known as the
4 Incremental Tax Equivalent (“ITE”), to provide municipalities with a mechanism to contribute
5 toward project feasibility. The ITE value will be based on the estimated value of incremental
6 property taxes collected from Union as a result of the project for a period of time that matches
7 the term of the TES. Implementation of this mechanism would require an agreement with the
8 municipality prior to commencement of construction.

9
10 This mechanism provides a means of satisfying the principle that each of the beneficiaries of
11 expansion to rural or remote communities should make a contribution towards the financial
12 viability of the project. Municipalities are one of the beneficiaries as they would see the
13 elimination of an economic development barrier, would receive incremental property taxes from
14 the projects that would not correspond to increases in necessary municipal service costs, and in
15 many cases, would benefit from reduced energy costs for municipally-owned facilities.

16
17 As noted in Section 4.6, Union will capture the ITE revenues from Expansion Community
18 municipalities in a deferral account to be disposed of annually to ratepayers.

1 *Community Expansion Barriers Addressed Through the ITE*

2 The ITE provides a means for expansion area municipalities to financially support the projects
3 and, in combination with other components of Union's Proposal, address the economic shortfall
4 that has been a key barrier to expansion for many communities.

5
6 *Eligibility*

7 Only municipalities that wish to pursue Community Expansion Projects at reduced economic
8 threshold levels below a PI of 0.8 (see Section 4.3), would be required to agree to the ITE.

9
10 *Term*

11 The term of the ITE contribution by the municipality will match the term of the TES proposed
12 for the Community Expansion Project.

13
14 4.3 E.B.O. 188 Exemption: Minimum Project PI Threshold

15 Union proposes an exemption from E.B.O. 188 that would allow the minimum economic
16 threshold for Community Expansion Projects to be lowered to a PI of 0.4 from the current
17 minimum of 0.8.

18
19 This lower threshold will be used exclusively for Community Expansion Projects that meet all of
20 the following criteria:

- 21 1. The project meets Union's definition of a Community Expansion Project;

- 1 2. Customers to be served by the project are required to pay a TES for a minimum period
- 2 of 4 years; and,
- 3 3. The municipality agrees to a binding commitment to make an ITE contribution for the
- 4 established TES term of the project.

5

6 *Determination of Minimum PI Threshold*

7 Union is proposing that the economic threshold for Community Expansion Projects be reduced

8 to a PI of 0.4. Reducing the minimum project PI to 0.4 allows Union to achieve a balance of

9 furthering the provincial goal of providing customers in non-serviced communities the ability to

10 gain access to natural gas, while being mindful of potential rate impacts for existing ratepayers.

11

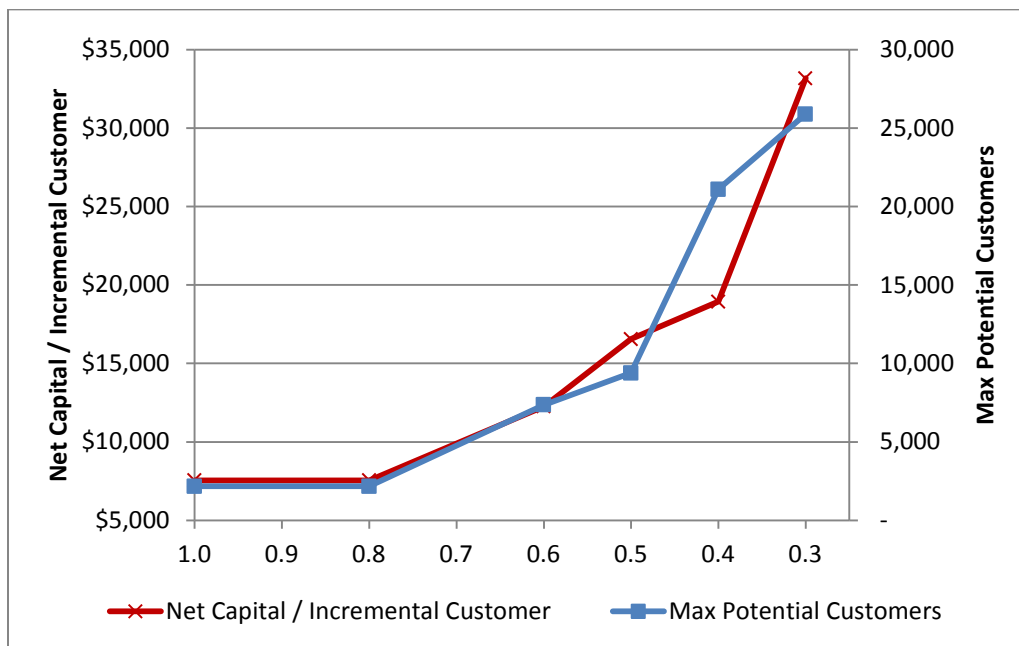
12 Union completed a high level analysis of potential projects identified in the Opportunity

13 Assessment which compared the number of potential customers and capital spending represented

14 at various minimum project PI levels. The analysis included contributions from both the TES and

15 ITE. Figure 4 shows the results of this analysis.

Figure 4
Community Expansion Projects Enabled at Various PI Levels



The analysis shows a steady increase in the number of potential customers that could be served as the minimum project PI's decreased from 0.8 to 0.5, with a noticeable increase in potential customers as the project PI's decrease from 0.5 to 0.4. The amount of capital on average required to provide access to each incremental customer increases at consistent rate as PI's decrease from 0.8 to 0.4.

The main reason for the increase in customers that could be served as the PI decreases from 0.5 to 0.4 is the impact of a large project that becomes feasible at 0.4. This project would provide access to natural gas to over 8,000 potential customers in the communities of Kincardine, Tiverton, Paisley and Chesley.

Table 3 provides a summary of the projects that may become feasible at each PI level without a need for CIAC sourced from the grants and loans announced by the Province.

Table 3
Immediate Community Expansion Opportunities at Various Minimum Project PI's

Minimum PI	Projects	Communities	Potential Customers	Forecast Customers	Estimated Capital (millions)
0.4	29	33	18,373	9,107	134
0.5	20	21	7,861	3,871	\$48
0.6	12	13	5,796	2,928	\$33

Additional detail on potential projects is provided in Appendix D Updated. Included for each project is the PI before considering the TES, ITE or CIAC. Also included is the required term for the TES and ITE to make each project feasible at a minimum PI of 0.4, 0.5, and 0.6, and the amount of CIAC required for the projects to reach those PI thresholds after including the TES and ITE for up to 10 years.

1 *Contract Customers (Rates M4, M5, M7, T1, T2, 20, 100)*

2 The required minimum PI for a contract customer to connect to a Community Expansion Project
3 will be the same as the minimum PI set for the Community Expansion Project, provided the
4 contract customer makes a binding commitment prior to ordering materials before the
5 commencement of construction of the system.

6
7 Whereas general service class customers are relatively homogenous, contract customers by their
8 nature are dissimilar from one another and a customer-specific calculation is necessary.

9
10 The required contribution from a contract customer will be based on their site specific costs (e.g.
11 Service and Meter & Regulation) plus any incremental common project costs, all compared to
12 the revenue they provide through existing rate class schedules. Where the PI for the contract
13 customer connection is less than the Community Expansion Project PI, the contract customer
14 will contribute to a level required to reach the project PI (i.e. to a PI as low as 0.4). This
15 methodology is consistent with current practices for a typical aid to construct project where
16 customers of different sizes are included.

17
18 The parameters of Union's Proposal, most specifically the maximum rate impact approximating
19 \$2 per month, were a key factor in Union proposing a minimum project PI of 0.4. At a project PI
20 of 0.3, the expected rate impact would approach that limit. An additional consideration leading to

Union's proposal was the significant escalation in incremental capital cost per customer shown in Figure 4 if minimum project PI's dropped below 0.4.

4.4 E.B.O. 188 Exemption: Investment Portfolio ("IP") and Rolling Project Portfolio ("RPP")

Inclusion

Union proposes an exemption from the E.B.O. 188 requirements that Community Expansion Projects to be included in both the distribution IP and RPP. This exemption is necessary because Board approval of a lower minimum project PI will have limited positive impact on Union's ability to expand service to additional communities unless IP and RPP related limitations are also addressed. Specifically, completing the four individual projects identified in this filing would drive the IP below the E.B.O. 188 minimum requirement. Given the number of projects identified in Union's Opportunity Assessment, the portfolio thresholds would severely limit the number of projects that could be undertaken in the future.

In the absence of applying the E.B.O. 188 portfolio approach to Community Expansion Projects, Union proposes limiting the capital spending for Community Expansion Projects to a ceiling that ensures that the resulting maximum expected annual rate increase is \$2/month for any projects made feasible without a need for CIAC by Union's proposal. Union also proposes that the impact in any given year of the multi-year Community Expansion program will not exceed \$10.00 for a typical residential customer consuming 2,200 m³ per year. Union believes these levels of rate

1 impact are consistent with the principle that cross-subsidization from existing customers is
2 acceptable, provided long-term rate impact is reasonable.

3 In the E.B.O. 188 Final Report, the Board noted:

4 *“The Board is of the view that all distribution system projects should be included in a*
5 *utility’s portfolio. This includes projects being development for security of supply and*
6 *system reinforcement reasons. The Board will be prepared on an exception basis to*
7 *consider a utility submission as to why a proposed project should not be included in the*
8 *portfolio but treated separately.”*⁹

9
10 It is on this basis that Union is proposing that Community Expansion Projects be excluded from
11 the IP and RPP requirements of E.B.O. 188.

12
13 *Investment Portfolio Capacity*

14 To test the impacts of Community Expansion Projects on the IP, Union applied the single year
15 capital impacts of the four projects proposed in this application to an IP based on the draft 2016
16 capital budget for distribution projects. Based on this analysis, completing the four projects

⁹ EBO 188 Final Report of the Board, Section 2.1.2.

would result in Union's IP decreasing to 1.03 for Union South, which is below the minimum target of 1.1.¹⁰

In Section 7, Union estimates capital spending implications for a number of potential expansion opportunities beyond the four projects proposed in this evidence. It is unknown at this point how many of these projects will be completed and consequently, Union is unable to accurately predict the specific impact on the Distribution IP each year. For this reason Union is proposing that the degree of short-term cross subsidization from existing customers be limited by managing both the overall program rate impact and the maximum annual rate impact, as noted in the second paragraph of Section 4.4, rather than attempting to set a new reduced minimum PI threshold for the IP.

Rolling Project Portfolio Capacity

Union also tested the impacts of Community Expansion Projects on the RPP. A fundamental assumption inherent in this analysis is that the RPP remains at the recent average. The results of this analysis are provided in Table 4.

¹⁰ Target of 1.1 includes the Board's safety factor as suggested in E.B.O. 188 Final Report of the Board, Section 2.3.10

Table 4
Impact of Community Expansion Projects on Rolling Project Portfolio
(\$ millions)

	Union South				Union North				Corporate			
	Inflow	Outflow	PI	NPV	Inflow	Outflow	PI	NPV	Inflow	Outflow	PI	NPV
Most Recent 3 year Average	\$31.5	\$20.5	1.54	\$11.1	\$13.6	\$10.1	1.35	\$3.5	\$45.2	\$30.6	1.48	\$14.6
Milverton	\$2.6	\$4.7	0.57	-\$2.0					\$2.6	\$4.7	0.57	-\$2.0
Prince Township					\$1.3	\$2.6	0.49	-\$1.3	\$1.3	\$2.6	0.49	-\$1.3
Kettle Point and Lambton Shores	\$1.2	\$1.8	0.66	-\$0.6					\$1.2	\$1.8	0.66	-\$0.6
Moraviantown	\$0.3	\$0.5	0.57	-\$0.2					\$0.3	\$0.5	0.57	-\$0.2
3 Year Average Plus 5 Projects	\$35.6	\$27.4	1.30	\$8.3	\$14.9	\$12.8	1.17	\$2.2	\$50.6	\$40.1	1.26	\$10.4

The analysis demonstrates that the RPP has the capacity to withstand the incremental capital investment required for the four projects that Union is proposing in this application. However, the degree of degradation in comparison to the IP is even greater. Union is concerned that the resulting impact on the RPP will become a barrier to any future projects, as noted in the summary of capital implications of future Community Expansion Projects provided in Section 7.

For this reason, Union is proposing the degree of long-term cross subsidization from existing customers be limited by adopting the same approach as that proposed for the IP, as noted in the second paragraph of Section 4.4.

4.5 Capital Pass-Through Mechanism

Union is proposing a capital pass-through mechanism to recover the Community Expansion Project capital costs when these expansion projects come into service. These investments are considered “not business-as-usual” and thus cannot be managed within Union’s Board-approved

1 capital budget through Union's 2014-2018 Incentive Regulation Mechanism ("IRM").
2 Furthermore, the direction from the Ministry of Energy for these potential investments had not
3 yet been made at the time Union's IRM framework was approved. Although the Community
4 Expansion Projects are, for the most part, relatively small in size, Union would not be able to
5 proceed with these projects without reasonable certainty of cost recovery.

6
7 This proposal is consistent with the principle that Gas Distributors should not be exposed to
8 financial risk related to the incremental capital investment required for Community Expansion
9 Projects.

10
11 As noted earlier, under Union's Proposal approximately 29 Community Expansion Projects
12 could be completed at an approximate capital cost of \$135 million. In the absence of approval to
13 pass capital through to rates at the time the capital is used or useful, Union will be unable to
14 commit the incremental capital required to facilitate expansion to additional communities.

15
16 Union proposes to adjust rates annually to recover the forecasted net revenue requirement
17 associated with the gross capital investment for all Community Expansion Projects. Consistent
18 with Union's current practice, gross capital will be reduced by any upfront CIAC that is received
19 (i.e. provincial funding). In addition, Union proposes to create a deferral account (see Section
20 4.6) to capture the variances between the forecast net revenue requirement and the actual net
21 revenue requirement for the Community Expansion Projects.

Union requests approval of the forecast net revenue requirements for the four projects proposed in this application. Union has provided the net revenue requirement for each of the four projects at Appendix F Updated. Following Board approval and construction, Union will include the projects in rates at its next annual rates proceeding.

4.6. Related Deferral Accounts

Community Expansion Project Deferral Account

Union proposes to create a Community Expansion Project Deferral Account that will be used to capture any variance between the forecast net revenue requirement approved in rates and actual revenue requirement for all Community Expansion Projects, including timing differences between the in-service date and the inclusion in rates.

The account balance will be disposed of as part of Union's annual non-commodity deferral account disposition proceeding. Union proposes to dispose of the deferral account balance to ratepayers in proportion to the allocation of the Community Expansion Projects costs to rate classes. Please see Appendix G for the draft accounting order.

Community Expansion Contribution Deferral Account

Union proposes to create a Community Expansion Contribution deferral account to capture the TES contributions from consumers and the ITE contributions from municipalities. The intent of

1 this deferral account is to allocate the TES and ITE revenues to ratepayers to reduce the cross-
2 subsidization of the capital costs. Please see Appendix G for the draft accounting orders.

3
4 The account balance will be disposed of to ratepayers as part of Union's annual non-commodity
5 deferral account disposition proceeding. Union proposes to allocate the TES credit to all rate
6 payers based on same allocation as the Community Expansion Project capital costs in rates.
7 Union proposes to allocate the ITE credit to ratepayers based on Union's Board-approved
8 property tax allocation.

9
105. **REVISED DISTRIBUTION NEW BUSINESS GUIDELINES**

11 Union's Connection and Contribution Policies have been modified over the years but continue to
12 meet the intent of E.B.O. 188. These guidelines deal with a variety of system expansion-related
13 matters including accountability for decisions, economic acceptance criteria, use of CIAC,
14 operational considerations, and minimum load requirements to provide initial service.

15
16 A revised version of Union's Connection and Contribution Policy, called Distribution New
17 Business Guidelines, is provided in Appendix H. For comparison purposes, a copy of Union's
18 previous Guidelines as filed in EB-2011-0210¹¹, Exhibit B1, Tab 3, is provided at Appendix I.

19
206. **REPORTING**

¹¹ Union's 2013 cost of service proceeding

1 Union will track Community Expansion Projects on a project-by-project basis. As part of
2 Union's annual stakeholder meeting Union will provide a report, by project, which outlines the
3 gross capital cost of each project, the amount of upfront CIAC received, the net capital included
4 in rate base, the term of the TES and ITE, and the forecast and actual attachment rates. A
5 Community Expansion Project will be reported for the final time once the TES term of the
6 project has been reached.

7
8 **7. FUTURE COMMUNITY EXPANSION PROJECTS**

9 As noted earlier, Union can complete approximately 29 projects under its Proposal. If additional
10 funding or project contributions are provided, the potential number of projects could expand
11 beyond this.

12
13 Union is seeking approval of four projects in this application. For the remaining 25 that can be
14 serviced under its Proposal, Union will continue to file leave to construct ("LTC") applications
15 for those expansion projects that meet the Board's LTC criteria. The LTC applications will
16 include the requests for approval of the net revenue requirement associated with the projects.
17 Union will also apply for franchise and certificate applications if necessary. For those projects
18 that do not meet the Board's LTC criteria, Union will file an application for approval of the
19 forecast net revenue requirements. Union will then include the approved net revenue requirement
20 impacts for all the approved projects in its next annual rate-setting application.

Upon approval of this application Union will consider a number of criteria in planning and prioritizing the additional 25 potential projects. The criteria to be considered for each project will include the estimated Project PI, the number of potential customers, capital availability, expected project duration, and the capacity of the local Districts to undertake detailed costing and market surveys to finalize feasibility studies.

Implications on Capital Spending and Portfolios

Given the level of interest being expressed by residents and municipal representatives from a number of the communities identified, Union expects a significant portion of the \$135 million investment reflected for the initial four and further 25 projects will be enabled within a 2 to 3 year period with Board approval of Union's Proposal in Section 4.

If Union was to include half the above investment in its Distribution Portfolios for two years in a row, the Investment Portfolio PI for the Union South area would drop to below 0.7 and the Rolling Project Portfolio PI would decrease to approximately 0.7, as shown in Tables 5 and 6. Note that these portfolio impacts assume no further projects or related capital spending are enabled by provincial loans or grants.

Table 5
Impact of Community Expansion Projects on Investment Portfolio¹²
(\$ millions)

¹² Assumes First Year PI of 0.30, for projects with 40 year PI's of 0.4.

	Union South				Union North				Corporate			
	Inflow	Outflow	PI	NPV	Inflow	Outflow	PI	NPV	Inflow	Outflow	PI	NPV
2016 IP (Draft Budget)	\$43.8	\$38.5	1.14	\$5.3	\$34.6	\$27.6	1.25	\$6.9	\$78.4	\$66.1	1.18	\$12.2
Incremental Investments (50% of 29 Projects)	\$12.2	\$40.8	0.3	-\$28.6	\$5.0	\$16.5	0.3	-\$11.6	\$17.2	\$57.3	0.3	-\$40.1
Impact With Incremental Projects	\$56.0	\$79.3	0.71	-\$23.3	\$39.5	\$44.2	0.90	-\$4.6	\$95.6	\$123.5	0.77	-\$27.9

Table 6
Impact of Enabled Community Expansion Projects on Rolling Project Portfolio¹³
(\$ millions)

	Union South				Union North				Corporate			
	Inflow	Outflow	PI	NPV	Inflow	Outflow	PI	NPV	Inflow	Outflow	PI	NPV
Most Recent 3 year Average	\$31.5	\$20.5	1.54	\$11.1	\$13.6	\$10.1	1.35	\$3.5	\$45.2	\$30.6	1.48	\$14.6
Incremental Investments (50% of 29 Projects)	\$19.2	\$48.0	0.40	-\$28.8	\$7.8	\$19.5	0.40	-\$11.7	\$27.0	\$67.5	0.40	-\$40.5
3 Year Average Plus Incremental Projects	\$50.7	\$68.5	0.74	-\$17.7	\$21.4	\$29.6	0.72	-\$8.2	\$72.2	\$98.1	0.74	-\$25.9

Stage 2 Economic Test

Consideration of the public interest by the Board can be aided by reviewing the results of a Stage 2 economic analysis of the effects of a broader community expansion program.

The Board's E.B.O. 134 decision, which was a precursor to E.B.O. 188, provided for use of further economic analysis to better understand the public benefits of expansion. This could take the form of both a Stage 2 and a Stage 3 analysis. Stage 2 generally refers to the energy cost savings that potential customers could achieve relative to their existing fuel usage. Stage 3 addresses public interest quantifiable and non-quantifiable benefits associated with a project. With the portfolio approach adopted in E.B.O. 188, the public benefits under the former Stage 2 and Stage 3 criteria of E.B.O. 134 are typically not reported in a facilities filing. They are not

¹³ Table represents a simplified analysis where capital expenditures constitute 100% of cash outflows.

1 necessary because the PI of the IP and RPP exceed 1.0, indicating a positive NPV on cash flows
2 attributed to Union.

3
4 Whereas a Stage 1 analysis includes only cash flows attributed to Union, Stage 2 and Stage 3
5 include cash flows not attributed to Union. These include customer cash flows attributed to
6 energy savings, and non-cash factors both of which provide an understanding of the broader
7 public interest perspective that the Board can consider in its evaluation of Union's proposal.

8
9 Union's Stage 2 analysis estimates that potential customers could have net energy savings of
10 approximately \$313 million if they had access to natural gas. This is derived as follows:

- 11 • Projects included are the 29 eligible projects at a minimum PI of 0.4, listed in
12 Appendix D Updated.
- 13 • The attachment rate is 80% of the market potential over an attachment term of 25
14 years. The 10 year forecast period attachment rate is 47% with the remaining 33%
15 occurring over the following 15 years.
- 16 • Net energy savings include existing fuel cost less cost of new natural gas equipment,
17 and less the cost of natural gas including the TES. These figures are then summed for
18 the number of customers and the NPV for a 40 year period is determined using a 5%
19 discount rate.

20
21 Alternative scenarios modelled to determine Stage 2 sensitivity include the following:

- Limiting the savings period to 30 years results in an NPV of \$255 million;
- A market attachment rate of 60% results in an NPV of \$ 270 million;
- Market attachment limited to 47% results in an NPV of \$248 million.

All ranges of scenarios indicate several hundred millions of dollars are available to be reinvested in goods and services by customers. This will have a multiplier effect on the GDP in Ontario's economy. This impact would be considered in a Stage 3 analysis; however, given the significant benefits from Stage 2, Union has not attempted to quantify a Stage 3 analysis in this application.

In relative terms, Union's capital investment for the above Stage 2 figures is approximately \$135 million. Although this figure is not used in the Stage 2 calculation it has been noted here to provide perspective to the Stage 2 NPV figures.

Potential Rate Impact Implications for Existing Customers

Union's proposals are expected to result in modest rate increases for existing in-franchise ratepayers. The following section provides the revenue requirement, cost allocation and rate impacts associated with the 29 potential Community Expansion Projects.

The annual revenue requirement associated with the 29 potential Community Expansion Projects ranges from approximately \$3.9 million in 2016 to \$11.4 million in 2018. The revenue requirements represent the costs associated with the 29 Community Expansion Project facilities assuming the

1 projects are in service from 2016 to 2018. The calculation of the annual revenue requirement in 2016
2 to 2018 and the underpinning assumptions are provided at Appendix J Updated.

3
4 i) To calculate rate impacts, Union added the largest revenue requirement directly attributable
5 to the Project (rate base, return, interest, tax, depreciation and O&M) between 2016 and 2018
6 of \$11.4 million to Union's 2013 Board-approved cost allocation study (updated per EB-
7 2013-0365). Using the 2013 Board-approved cost allocation study updated for the 2018
8 revenue requirement results in:

9 i) an increase of approximately \$2.7 million, allocated to Union North in-franchise rate
10 classes;

11 ii) an increase of approximately \$8.9 million, allocated to Union South in-franchise rate
12 classes; and,

13 iii) a decrease of approximately \$0.2 million allocated to ex-franchise rate classes. The cost
14 allocation impact by rate class is provided at Appendix K, column (a) Updated.

15
16 In comparison to 2015 Board-approved rates per EB-2015-0187 (July 2015 QRAM), the bill impact
17 for the average Rate M1 residential customer in Union South consuming 2,200 m³ per year is an
18 increase of approximately \$4 to \$5 per year. For the average Rate 01 residential customer in Union
19 North consuming 2,200 m³ per year, the bill impact is an increase of \$1 to \$2 per year. The bill
20 impacts for the average Rate M1 and Rate 01 residential customers are provided at Appendix L
21 Updated.

1 Union also included the contributions associated with the TES and ITE contributions. As described
2 at Section 4.6, the TES revenue received from ratepayers in Expansion Communities and ITE
3 contributions from Expansion Community municipalities will be collected in deferral accounts
4 and disposed of annually to ratepayers. The disposal of the deferral account will mitigate overall
5 rate impacts for the period in which the TES and ITE contributions are collected (up to 10 years).
6 In 2018, the estimated TES revenue is \$3.2 million and the estimated ITE contribution is \$0.8
7 million, for a total of \$3.9 million. Accordingly, the net revenue requirement in 2018 associated
8 with the 29 potential Community Expansion Projects is \$7.5 million (\$11.4 million less \$3.9
9 million).

10
11 To calculate the final rate impacts associated with the net revenue requirement of \$7.5 million,
12 Union allocated the contributions associated with the TES and ITE to rate classes. Specifically,
13 the TES credit of \$3.2 million is allocated to rate classes in proportion to the allocation of the 29
14 Community Expansion Projects in 2018. For the allocation of the ITE credit of \$0.8 million,
15 Union allocated this amount to rate classes in proportion to the 2013 Board-approved property tax
16 allocation. The allocation of the TES and ITE contributions is provided at Appendix K, column (b)
17 and (c) Updated.

18
19 The net revenue requirement of \$7.5 million in 2018 results in: (i) an increase of approximately
20 \$1.8 million, allocated to Union North in-franchise rate classes; (ii) an increase of approximately
21 \$6.0 million, allocated to Union South in-franchise rate classes; and, (iii) a decrease of approximately

1 \$0.3 million allocated to ex-franchise rate classes. The cost allocation impact by rate class of the net
2 revenue requirement is provided at Appendix K, column (d) Updated.

3
4 In comparison to 2015 Board-approved rates per EB-2015-0187 (July 2015 QRAM), the bill impact
5 for the average Rate M1 residential customer in Union South consuming 2,200 m³ per year is an
6 increase of approximately \$3 to \$4 per year. For the average Rate 01 residential customer in Union
7 North consuming 2,200 m³ per year, the bill impact is an increase of less than \$1 per year. The bill
8 impacts for the average Rate M1 and Rate 01 residential customers are provided at Appendix M
9 Updated.

10 11 Provincial Funding and Anticipated Impacts

12 In 2014, the provincial government announced its intention to support the extension of the
13 natural gas system by way of \$200 million in Natural Gas Access Loans and \$30 million in
14 Natural Gas Economic Development grants. Provincial intent has been validated through both
15 the Board letter in Appendix A, and mandate letters from the Premier of Ontario to the Minister
16 of Economic Development, Employment and Infrastructure, The Minister of Energy, and the
17 Minister of Agriculture. Copies of these letters are provided in Appendix N.

18
19 The criteria and form of funding from the announced provincial funding are unknown at this
20 time. Whatever criteria are defined will have a significant impact on which communities might
21 become newly eligible. For example, if the province decides that economic viability of each
22 project is the key determinant in funding decisions, then a certain group of projects that appear

1 the most viable would proceed until such time as the funding is exhausted. In contrast, if another
2 determinant, like community size (number of potential customers) or localized economic
3 circumstances (local unemployment rate) becomes the key, a different group of communities
4 become eligible.

5
6 For these reasons Union is unable at this time to provide an estimate of the further number of
7 Community Expansion Projects that might be made feasible with the financial support of the
8 provincial program.

9
10 Any potential Natural Gas Access Loans and Natural Gas Economic Development Grants
11 received in advance of project construction will be treated as an aid-to-construction and reduce
12 the gross project capital. This is consistent with current practice.

13
14 **8. SPECIFIC COMMUNITY EXPANSION PROJECT SUMMARY**

15 Subject to the Board's approval of Union's Community Expansion Project proposal, Union is
16 seeking specific leave to construct approval to construct natural gas pipelines to serve the
17 following communities in the 2016 timeframe:

- 18 • Milverton
- 19 • Prince Township
- 20 • Chippewas of Kettle and Stony Point First Nation and Lambton Shores

Union is also planning to extend service to the following community subject to approval of the Proposal:

- Delaware Nation of Moraviantown

The expansion projects for Milverton, Prince Township, and Chippewas of Kettle and Stony Point First Nation and Lambton Shores meet the criteria for a Section 90 LTC application.

Although the Delaware Nation of Moraviantown Project does not meet the LTC criteria, Union has filed detailed information for this project. Union has the necessary Franchise and Certificate rights in place for all four of these projects.

Details for each of the projects are filed under separate Sections in Exhibit A, Tab 2. These details include a project summary, market profile, proposed facilities, project costs, project economics, pipeline design and construction, environmental and land matters, and First Nations and Métis consultation.

For the Milverton, Chippewas of Kettle and Stony Point First Nation and Lambton Shores, and Delaware Nation of Moraviantown projects, the potential exists for expansion outside the area being served by the current project. For these projects, the pipelines are being sized for the ultimate load in the areas, not just the current project. Union does not expect any future expansion for the Prince Township project that would affect the proposed system design.

1 In terms of consultation, Union has met with Municipal officials and First Nation Band leaders in
2 each of the communities to discuss and explain the proposed project. Attachment forecasts have
3 been developed for each of the four communities. These attachment forecasts are based on
4 phone surveys, discussions with community leaders, and results from prior Community
5 Expansion Projects.

6
7 An Environmental Protection Plan (“EPP”) has been prepared for each of the projects. The EPP
8 identifies all potential environmental features in the project area and includes mitigation
9 measures designed to protect these features. By following the EPP’s recommendations, there will
10 be no long-term significant environmental impacts as a result of these projects.

11 The proposed pipelines will be constructed to meet or exceed all CSA and TSSA code and
12 regulation requirements. The pipelines will be constructed on road allowance. Where private
13 lands are required, Union has met with and discussed the project with the directly affected
14 landowners. No concerns have been identified.

15
16 A summary of each project is shown in Table 8. The projects are being proposed on the premise
17 that approval of Union’s Proposal as highlighted in Section 4 would enable these projects to
18 proceed without any form of provincial funding.

19

Table 8
Proposed Community Expansion Projects

Community	Maximum Potential Customers	Forecast Customers	Capital Cost		Contributions (NPV)		TES/ITE Period (Months)	PI*
			Preferred Design	Minimum Design	TES	ITE		
Milverton	818	526	\$4.93	\$4.77	\$1.01	\$0.15	48	0.5
Prince Township	375	242	\$2.72	\$2.72	\$0.22	\$0.09	48	0.5
Lambton Shores / Kettle Point FN	496	281	\$2.42	\$1.79	\$0.51	\$0.01	82/48	0.7 3
Moraviantown FN	70	61	\$0.54	\$0.49	\$0.10	\$0.02	48	0.5
TOTAL	1,759	1,110	\$10.61	\$9.77	\$1.84	\$0.27		

All dollars are in millions

*PI for minimum design after including contributions from proposed TES and ITE

Each of the four expansion projects are expected to be in-service in fall 2016. To meet this timeline, Union respectfully requests the Board issue a decision no later than April 15, 2015.

Ministry of Energy

Office of the Minister

4th Floor, Hearst Block
900 Bay Street
Toronto ON M7A 2E1
Tel.: 416-327-6758
Fax: 416-327-6754

Ministère de l'Énergie

Bureau du ministre

4^e étage, édifice Hearst
900, rue Bay
Toronto ON M7A 2E1
Tél. : 416 327-6758
Télééc. : 416 327-6754



FEB 17 2015

Ms Rosemarie Leclair
Chair & Chief Executive Officer
Ontario Energy Board
PO Box 2319
2300 Yonge Street
Toronto ON M4P 1E4

Dear Ms Leclair:

As part of Ontario's Long-Term Energy Plan (LTEP), the government committed to work with gas distributors and municipalities to pursue options to expand natural gas infrastructure to service more communities in rural and northern Ontario.

In addition to our LTEP commitment, the government is working to develop a Natural Gas Access Loan and a Natural Gas Economic Development Grant. The Ministry of Economic Development, Employment and Infrastructure is the ministry responsible for establishing these programs, and is in the early stages of their design. The Ministry of Energy will provide support.

In my letter to you on June 26, 2014, with respect to the OEB's 2014-2017 Business Plan, I asked that the Board examine its oversight of the natural gas sector and to assess what options may exist to facilitate connecting more communities to natural gas.

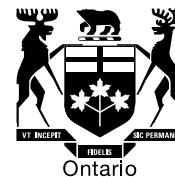
I am writing to you today to encourage the Board to continue to move forward on a timely basis on its plans to examine opportunities to facilitate access to natural gas services to more communities, and to reiterate the government's commitment to that objective. I appreciate your continued support to ensure the rational expansion of the natural gas transmission and distribution system for all Ontarians.

Sincerely,

Bob Chiarelli
Minister

**Ontario Energy
Board**
P.O. Box 2319
27th Floor
2300 Yonge Street
Toronto ON M4P 1E4
Telephone: 416- 481-1967
Facsimile: 416- 440-7656
Toll free: 1-888-632-6273

**Commission de l'énergie
de l'Ontario**
C.P. 2319
27e étage
2300, rue Yonge
Toronto ON M4P 1E4
Téléphone: 416- 481-1967
Télécopieur: 416- 440-7656
Numéro sans frais: 1-888-632-6273



BY E-MAIL

BY: EMAIL AND WEB POSTING

February 18, 2015

To: All Applicants and Potential Applicants for Expansion of Natural Gas Distribution

Re: Expansion of Natural Gas Distribution

The Provincial Government has set out a goal of ensuring that Ontario consumers in communities that currently do not have access to natural gas are able to share in affordable supplies of natural gas. In an effort to facilitate enhanced access to natural gas for rural and remote communities and businesses in the province, the Ontario Energy Board (the "Board") is inviting parties with the appropriate financial and technical expertise to propose one or more plans for natural gas expansion.

In this context and depending on the nature and scope of any proposals made, the Board is aware that regulatory flexibility may be required. The Board will hear requests for regulatory flexibility or appropriate exemptions in the context of an application made for approvals pertaining to expansion portfolios and specific projects.

Background

In the Long Term Energy Plan the Ontario Government signaled that it would look at opportunities to expand natural gas service within the Province to areas that are not currently served. In support of this objective, the Government, through the Minister of Economic Development, Employment and Infrastructure, will be making available;

- \$200 million in Natural Gas Access Loans over two years to help communities partner with utilities to extend access to natural gas, and
- \$30 million in "Natural Gas Economic Development Grants" to accelerate projects with clear economic development potential.

In 1998, the Board established guidelines for the expansion of natural gas service in its *EBO 188 Report on Natural Gas Distribution System Expansion* (EBO 188). The intent of EBO 188 is to facilitate the expansion of natural gas service while holding other customers harmless from the cost of new connections.

EBO 188 adopts a portfolio approach for gas expansion/connections, which requires distributors to design a portfolio of projects that will achieve an overall profitability index (PI) of 1. This means that over the life of the projects within the portfolio, connected customers will pay the entire costs (through rates and a capital contribution if required). EBO 188 also specifies that any one individual expansion project within a portfolio or otherwise must meet a PI of 0.8. This requirement is intended to minimize cross-subsidization across customers within a portfolio.

While minimizing cross-subsidization either within a portfolio of projects, or between a portfolio and the rest of Ontario customers remains an important goal, the Board is cognizant that the specific requirements of EBO 188 may require some flexibility to expand access to natural gas for communities that are not currently served.

The Board's Approach

To the extent that the economics of a proposed project may not be accommodated within the current regulatory construct, the Board invites proponents to identify, within their applications, any options to address such regulatory issues. The Board will consider any such options as part of its adjudicative process. For instance, the Board may consider specific and supportable proposals that address;

- Whether the Board should allow existing natural gas distributors to establish surcharges to improve the feasibility of potential expansion projects by minimizing the level of required capital contribution.
- Whether the Board should allow for recovery of the revenue requirement associated with expansion costs in rates prior to the end of any incentive regulation plan term once the assets are used and useful.
- Whether projects that have a portfolio PI less than 1.0 and individual projects within a portfolio that have a PI lower than 0.8 should be considered.

Applicants should take the following into consideration when filing their application:

- Where no certificate of public convenience and necessity has been previously granted in a particular area, applications will be considered from all proponents with the requisite financial and technical expertise and experience.

- Proponents should develop proposals that, while ensuring safety and reliability, are cost effective and incorporate flexibility with respect to cost recovery (e.g. ROE, depreciation period, recovery of capital contribution, etc.).
- Proponents should develop proposals that include measures that foster predictability and cost certainty from a consumer perspective.
- Proponents should develop proposals that minimize impacts on existing natural gas ratepayers as a result of new expansion projects.

The Board is considering the need and manner in which to provide clarity for municipalities and potential new service providers on the processes needed to be taken to expand access to natural gas and will communicate further on this.

Invitation to Submit Application

The Board encourages parties interested in distributing natural gas to unserved rural and remote communities to submit an application seeking one or more required approvals (e.g. certificate of public convenience and necessity, franchise agreement, leave to construct) for the Board's consideration.

Subsequent to any Board approval of the above applications, a company would be required to apply to the Board for an order approving just and reasonable rates for the sale of gas and provisions of gas distribution services.

A summary of the requisite approvals is found under Appendix A of this letter.

Any questions relating to this letter should be directed to **Jason Craig** at jason.craig@ontarioenergyboard.ca at 416-440-8139. The Board's toll-free number is 1-888-632-6273.

Yours truly,

Original Signed By

Peter Fraser
Vice President, Industry Operation Performance

Appendix – A Description of Approvals

Certificate of Public Convenience and Necessity

In order to provide natural gas distribution services to consumers in Ontario, a company must apply to the Board for a certificate of public convenience and necessity for the service territory that is to be served.

The certificate of public convenience and necessity grants the gas distributor the right to construct infrastructure for the purposes of supplying gas to consumers in the service territory specified.

Numerous examples of certificate of public convenience and necessity applications can be found on the Board's website.

Franchise Agreement

In order to provide natural gas distribution services to consumers in Ontario, a company must also enter into a municipal franchise agreement with a municipality. The municipal franchise agreement is signed by both the municipality that is agreeing to be served and the distribution company.

The Board has the authority to approve the municipal franchise agreement. The municipal franchise agreement sets out the right for a natural gas distributor to operate works and add to works for the distribution of gas within the boundaries of a municipality.

In 2000, a Model Franchise Agreement ("MFA") was developed for use across the province.

The MFA sets out the obligations of the gas distributor in regard to the technical, construction, safety, and operational aspects of the natural gas distribution system within the municipality. The terms of the MFA ensure coordination between the municipality and the utility with regards to construction, operation and maintenance of the system. The standard term of the MFA is 20 years.

The model franchise agreement and examples of franchise agreement applications can be found on the Board's website.

Leave to Construct

Any company planning to build a distribution system in Ontario must apply to the Board for leave to construct if the proposed pipeline:

- a) is greater than 20 kilometres in length;
- b) is estimated to cost more than the amount prescribed by certain regulations (currently \$2 million); or
- c) uses pipe that has a nominal pipe size of 12 inches or more and has an operating pressure of 2,000 kilopascals or more.

Application may also be made to the Board to expropriate the land rights necessary to build the pipeline (and related infrastructure) once leave to construct is granted.

Leave to construct applications typically provide: a project summary, information regarding the need for the proposed project, facility planning information, the projected costs of the project and other economic, engineering, and environmental information (including detailed environmental reports), and the land requirements for the project (including plans for informing and negotiating with impacted landowners).

The Board's *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario* provides detailed information regarding the planning requirements for locating new facilities, the mitigation measures required for pipeline (and related facility) construction and the process for review and approval of environmental reports. These guidelines can be found on the Board's website: http://www.ontarioenergyboard.ca/oeb/_Documents/Regulatory/Enviro_Guidelines_HydrocarbonPipelines_2011.pdf.

Numerous examples of leave to construct applications and the associated Board decisions on those applications can be found on the Board's website.

Glossary of Terms

Aid to Construction (Aid): A financial contribution to the capital costs of a natural gas system extension, also called Aid, or Contribution, which most commonly is paid prior to construction.

Community Expansion Project: A natural gas system expansion project which will provide first time natural gas system access where a minimum of 50 potential customers in homes and businesses already exist, for which minimum economic feasibility guidelines permit a Profitability Index (“PI”) of less than 1.0.

Contribution: A financial contribution required from customers or other parties to enable a project to become economically feasible. Contributions can be made in the form of Aid to Construction, or through additional revenues.

Customer: A home or business owner or resident who currently has natural gas service and pays a monthly natural gas bill.

Incremental Tax Equivalent (ITE): A new form of Contribution paid by municipalities who will benefit from community expansion projects with reduced economic thresholds, as proposed in this filing (Tab 1 Section 4.2).

Investment Portfolio: The costs and revenues associated with all new distribution customers who are forecast to attach in a particular test year (including new customers attaching on existing mains). The Investment Portfolio includes a forecast of normalized reinforcement costs.

Potential customer: a home or business owner or resident who is not currently a natural gas customer.

Profitability Index (PI): A ratio of the net present value of the cash inflows over the net present value of the cash outflows from a Discounted Cash Flow analysis of a project.

1 **Rolling Project Portfolio:** An accumulation of the new business capital requisitions that are
2 issued and approved for a 12 month period. The rolling Profitability Index (“PI”) is the
3 cumulative PI data from the Rolling Project portfolio. The rolling project portfolio includes
4 all future customer attachments, revenues and costs on the basis of the life cycle of each
5 project. It also includes a forecast of normalized reinforcement costs. It excludes those
6 customers requiring only a service lateral from an existing main

7 **Small Main Extension Project:** All other forms of distribution expansion which provide first
8 time natural gas system access to customers. These projects include the extension of mains
9 and related service attachments, and service lines to individual commercial and industrial
10 customers off existing mains.

11 **Temporary Connection Surcharge (TCS):** A new form of Contribution paid by customers,
12 proposed in this filing (Tab 3).

13 **Temporary Expansion Surcharge (TES):** A new form of Contribution paid by customers,
14 proposed in this filing (Tab 1 Section 4.1).

Rep: OEB

Doc: 12JLZ

Rev: 0

Was preliminary page 1 1
E.B.O. 188

IN THE MATTER OF the *Ontario Energy Board*
Act[12JF7-0:1], R.S.O. 1990, c. O.13;

AND IN THE MATTER OF a hearing to inquire into, hear
and determine certain matters relating to natural gas system
expansion for The Consumers' Gas Company Ltd., Union Gas
Limited and Centra Gas Ontario Inc.

BEFORE: G.A. Dominy
Presiding Member
R.M.R. Higgin
Member
J.B. Simon
Member

FINAL REPORT OF THE BOARD

January 30, 1998

Blank page

Was preliminary page 2 7

TABLE OF CONTENTS

1.	THE PROCEEDING	[13]
1.1	The Background	[14]
1.2	Interventions	[40]
2.	THE PORTFOLIO APPROACH	[72]
2.1	Interim Report Conclusions	[73]
2.2	Positions of the Parties	[81]
2.3	Board's Comments And Findings	[88]
3.	COMMON METHODS FOR FINANCIAL FEASIBILITY ANALYSIS	[105]
3.1	Interim Report Conclusions	[106]
3.2	Positions of the Parties	[108]
3.3	Board's Comments and Findings	[129]
4.	CUSTOMER CONNECTION AND CONTRIBUTION POLICIES	[136]
4.1	Interim Report Conclusions	[137]
4.2	Positions of the Parties	[142]
4.3	Board's Comments and Findings	[147]
5.	ENVIRONMENTAL PLANNING REQUIREMENTS FOR SYSTEM EXPANSION	[156]
5.1	Interim Report Conclusions	[157]
5.2	Positions of the Parties	[163]
5.3	Board's Comments and Findings	[172]
6.	MONITORING AND REPORTING REQUIREMENTS	[182]
6.1	Interim Report Conclusions	[183]
6.2	Positions of the Parties	[197]

Report of the Board

6.3 Board's Comments and Findings [\[209\]](#)

7. COMPLETION OF THE PROCEEDING AND COSTS [\[231\]](#)

7.1 Completion of the Proceeding [\[232\]](#)

7.2 Costs [\[235\]](#)

APPENDICES

11

APPENDIX A

[241]

Parties Concurring with the ADR Agreement

[242]

Parties Substantially Supporting the Dissent Document

[244]

APPENDIX B ONTARIO ENERGY BOARD GUIDELINES FOR ASSESSING AND REPORTING ON NATURAL GAS SYSTEM EXPANSION IN ONTARIO

[247]

Blank page

Was page ii 12

Report of the Board

1. THE PROCEEDING

1.1 THE BACKGROUND

1.1.1 In a Notice of Public Hearing dated July 31, 1995, the Ontario Energy Board ("the Board") made provision to hold a public hearing under subsection 13(5) of the *Ontario Energy Board Act* ("the OEB Act", "the Act") to inquire into, hear and determine certain matters relating to the expansion of the natural gas systems of The Consumers' Gas Company Ltd. ("Consumers Gas"), Union Gas Limited ("Union") and Centra Gas Ontario Inc. ("Centra"), (collectively "the utilities"). The proceeding was given Board File No. E.B.O. 188.

1.1.2 In Procedural Order No. 1 the Board ordered the utilities to file their current policies for determining the feasibility of proposed system expansions and the application of environmental study reports.

1.1.3 The Board held an Issues Day meeting on September 11, 1995 and heard submissions on a proposed Issues List. The Board finalized the Issues List in Procedural Order No. 2 dated September 14, 1995.

1.1.4 Procedural Order No. 3, dated October 27, 1995, made provision for parties to file evidence and interrogatories on the evidence. The Order also provided for an alternative dispute resolution ("ADR") conference to be held commencing December 11, 1995 ("the first ADR Conference").

1.1.5 The Board received the *Report to The Ontario Energy Board on The Alternative Dispute Resolution Conference in E.B.O. 188 A Generic Hearing on Natural Gas System Expansion in Ontario*, on December 21, 1995 ("the first ADR Report"). There were divergent views expressed in the first ADR Report by the parties with respect to the principles involved in system expansion.

1.1.6 Having reviewed the first ADR Report, the Board issued Procedural Order No. 4 on January 11, 1996. In that Order, the Board directed that the parties choosing to file argument and reply should focus their submissions on the following issues:

1.1 *Should financial feasibility be the only determinant for expansion or should it include, apart from security of supply and safety:*

(1) *an obligation to serve in areas where existing service is available;*

(2) *externalities;*

If externalities are to be included, what specific externalities, i.e. economic, social, environmental, should be considered? What tests should be applied and in what sequence?

Report of the Board

- 1.2 *Given the answer to 1.1, what level of financial subsidy, if any, should be applied to system expansion;*
- 1.3 *Should a portfolio of projects be utilized or should the utilities account for expansion on a project-by-project basis? How should the portfolio be defined?*
- 1.1.7 Submissions were filed on February 2, 1996 and reply submissions were filed on February 19, 1996. 22
- 1.1.8 An Interim Report[12JM1-0:1] of the Board ("Interim Report") was issued on August 15, 1996. In that Interim Report the Board made a determination of the issues and set out the principles that would apply to system expansion projects. The Board directed the parties to develop guidelines and policies reflecting the Board's conclusions. The Board also determined that the continuation of the proceeding should be by way of written submissions and a further ADR Settlement Conference ("the second ADR Settlement Conference"). 23
- 1.1.9 A written common submission was filed by the utilities on September 30, 1996, and submissions and comments on the utilities' common submission were received from Board Staff, Consumers' Association of Canada, Canadian Industry Program for Energy Conservation, Industrial Gas Users Association/City of Kitchener, Green Energy Coalition, Northwestern Ontario Municipal Association/Federation of Northern Ontario Municipalities, Pollution Probe and Ontario Federation of Agriculture/Ontario Pipeline Landowners' Association. Was page 3 24
- 1.1.10 In January 1997, the second ADR Settlement Conference was held. This resulted in the submission of: 25
- an ADR Agreement filed with the Board on March 14, 1997, subscribed to by the utilities and supported by a number of other parties ("ADR Agreement"), which included proposed System Expansion Guidelines; 26
 - a dissent in the form of a document entitled "Deficiencies of the E.B.O. 188 ADR Agreement and their Rectification" dated April 1, 1997 ("Dissent Document"); 27
 - letters of comment from various parties on the ADR Agreement and Dissent Document; and 28
 - responses (dated July 25, 1997) to a set of Board clarification questions to the utilities. 29
- 1.1.11 The parties concurring with the ADR Agreement and those substantially supporting the Dissent Document are listed in Appendix A[241]. 30

1.1.12 In preparing this Final Report, the Board has considered the above documents. The resulting *Guidelines for Assessing and Reporting on Natural Gas Distribution System Expansion in Ontario (1998)* ("the Guidelines") are issued as Appendix B[247] to this Report.

32

1.1.13 The following chapters set out the issues and the principles established in the Interim Report by quoting directly from that document. The positions of the parties are outlined by referencing the ADR Agreement, the Dissent Document and the various comments and clarifications made.

Was page 4 33

1.1.14 The Board's comments and findings are structured as:

34

- The Portfolio Approach

35

- Common Methods for Financial Feasibility Analysis

36

- Customer Connection and Contribution Policies

37

- Environmental Planning Requirements for System Expansion

38

- Monitoring and Reporting Requirements

39

1.1.15 As of January 1, 1998, Union and Centra merged into a single company, Union Gas Limited. The Board's findings in this Report and in the Guidelines are applicable to the new company and to Consumers Gas.

40

1.2 INTERVENTIONS

41

1.2.1 The following parties intervened in the proceeding:

42

- Canadian Association of Energy Service Companies

43

- City of Kitchener

44

- Consumers' Association of Canada

45

- Energy Probe

46

- Federation of Northern Ontario Municipalities

47

- Green Energy Coalition

Report of the Board

•	Grenville-Wood	48
•	The Heating, Ventilation, Air Conditioning Contractors Coalition Inc.	49
•	Industrial Gas Users Association	50
•	Municipal Electric Association	51
•	Natural Resource Gas Limited	52
•	Northwestern Ontario Municipal Association	53
•	Ontario Coalition Against Poverty	54
•	Ontario Federation of Agriculture	55
•	Ontario Hydro	56
•	Ontario Native Alliance	57
•	Ontario Pipeline Landowners' Association	58
•	Ottawa-Carleton Gas Purchase Consortium	59
•	Pollution Probe	60
•	Power Workers' Union	61
•	TransAlta Energy Corporation	62
•	TransCanada PipeLines Limited	63
•	Woodland Hills Community Inc.	64

Was page 5

LATE INTERVENTIONS

•	The British Columbia Ministry of Energy, Mines and Petroleum Resources	66
---	--	----

- Canadian Industry Program for Energy Conservation

68

- Ecological Services For Planning Inc.

69

- F & V Energy Co-operative Inc.

70

- StampGas Inc.

Was page 6 71

Blank page

2. THE PORTFOLIO APPROACH

2.1 INTERIM REPORT CONCLUSIONS

2.1.1 *The Board believes that utilities are in the best position to plan their distribution systems and, therefore, they should have flexibility in choosing the optimal system design for their distribution system expansions. The Board also believes that if the utilities are allowed to assess the financial viability of all potential customers as a group [using a portfolio approach] more marginal customers could be served as a result of assessing the cost of serving them together with more financially viable customers.*

2.1.2 *The Board is of the view that all distribution system expansion projects should be included in a utility's portfolio. This includes projects being developed for security of supply and system reinforcement reasons. The Board will be prepared on an exception basis to consider a utility's submissions as to why a proposed project should not be included in the portfolio but treated separately.*

2.1.3 *The Board believes that the issue of the timing of projects can be mitigated by the use of a rolling P.I. [Profitability Index] or benefit to cost ratio in the portfolio. The Board finds that using a rolling P.I. such as the approach used by Union will allow more opportunity for new projects to be added to the portfolio in a more timely fashion and that this is in the public interest. Union's rolling P.I. is a weighted average calculation of the cumulative net present value ("NPV") inflows divided by the cumulative NPV outflows during the preceding 12 months.*

2.1.4 *The Board expects the utilities to develop common policies on calculating rolling P.I.s. The forecast rolling P.I.s at a given point in time will be compared to the actuals in each utility's rates case to determine if any action needs to be taken with regard to forecast variances.*

2.1.5 *The Board recognizes that subsidization can be measured at both the project and portfolio level. An overall rolling portfolio P.I. of 1.0 means that existing customers will not suffer a rate increase over the long term as a result of distribution system expansion. The Board is therefore of the view that an overall portfolio P.I. of 1.0 or better (emphasis added) is in the public interest. Using this approach will obviate the need for the intense scrutiny of the financial viability of each project; will ensure that existing ratepayers are not negatively impacted by new projects (given the Board's proviso above on the sharing of risks); and assist communities to obtain gas service where otherwise it would not be financially feasible on a stand-alone basis.*

2.1.6 *However, at the present time the utilities calculate the DCF ["discounted cash flow"] for proposed projects over long periods of time. The P.I. or benefit to cost ratio is based on this calculation. In the early years, the costs shown in the calculation generally exceed the revenues and there is a greater impact on rates than in the later years when revenues generally exceed costs. The Board is concerned that even if a utility demonstrates that its portfolio of distribution system projects shows a P.I. of at least 1.0 the impact on rates in a given year may be undue. For this reason, the*

Board expects the utilities to demonstrate in their rates cases that the short-term rate impact of the cumulative effect of the portfolios will not cause an undue burden on existing ratepayers.

- 2.1.7 *The Board has considered whether or not it should impose a minimum threshold P.I. for projects to be included in the portfolios. The Board is concerned that the utilities may proceed with a number of projects with low P.I.s even though the P.I.s of the portfolios remain at 1.0 or greater. The cumulative impact of these projects may result in economic inefficiencies that outweigh the public benefit of the portfolio approach. From time to time, the Board will review the project specific data to monitor the operation of the portfolios in order to determine whether the cumulative economic inefficiency of proceeding with financially unfeasible projects outweighs the public interest in using the portfolio approach.*

2.2 POSITIONS OF THE PARTIES

- 2.2.1 The ADR Agreement proposed that each utility group all proposed new distribution customers and new facilities to serve them, for a particular test year into one portfolio (the "Investment Portfolio"). The Investment Portfolio would be designed to achieve a NPV of zero or greater (including normalized reinforcement costs).

- 2.2.2 The ADR Agreement proposed that each utility also maintain a rolling 12 month distribution expansion portfolio (the "Rolling Project Portfolio"). The cumulative result of project-specific discounted cash flow ("DCF") analyses from the past 12 months would be calculated monthly. The costs and revenues associated with serving customers on existing mains would not be included. The Rolling Project Portfolio would be used as a management tool by the utilities to decide on appropriate distribution capital expenditures.

- 2.2.3 The Dissent Document listed three concerns with the Investment Portfolio proposed in the ADR Agreement:

- i. service lines off existing mains are included;
- ii. security of supply projects are not included; and
- iii. reinforcement costs have been normalized rather than using forecast actual costs.

2.3 BOARD'S COMMENTS AND FINDINGS

Investment Portfolio

- 2.3.1 The Board accepts the ADR Agreement proposal that each utility would group into one portfolio, the Investment Portfolio, all proposed new distribution customer attachments and facilities for a

Report of the Board

particular test year. The Investment Portfolio would be designed to achieve a positive NPV (greater than zero) in the test year (including normalized reinforcement costs).

2.3.2 The Board considers that a primary purpose of the Investment Portfolio analysis is to provide the Board with sufficient evidence to decide whether a utility's test year system expansion plan will result in undue rate impacts.

2.3.3 The Board understands that the ADR Agreement's proposed Investment Portfolio contains the capital costs of facilities for all new customers added during a test year. The analysis of system expansion financial feasibility includes revenues and operation and maintenance ("O&M") costs associated with these new customers over horizons as proposed up to 40 years. The utilities propose to include an allowance for reinforcement costs to supply the new projects on a normalized basis.

2.3.4 Since the Investment Portfolio analysis is intended to predict the financial and rate impacts of test year incremental system expansion capital expenditures and associated revenues and expenses, it is inappropriate to include historic capital expenditures or revenues from attachments in prior periods.

2.3.5 The Board accepts the difficulty in isolating test year customers attaching to new mains only (versus those attaching to mains built in prior years). However, as specified in the Guidelines attached as Appendix B, an estimate of the NPV without attachments to prior expansions will be required. This will enable the Board to better monitor the overall economic feasibility of such projects.

2.3.6 The Board's interpretation of the Investment Portfolio analysis and its associated rate impacts was assisted by reference to Consumers Gas' interrogatory response [Exhibit I, Tab 7, Schedule 8] in the E.B.R.O. 495 Consumers Gas 1998 rates case. The Board directs the utilities to file future impact analyses in a similar form (see paragraph 6.3.4[214]).

2.3.7 The Board sought further explanation for the proposed treatment of reinforcement costs in the Investment Portfolio in its letter of July 4, 1997 to the utilities. The utilities responded that "normalized" reinforcement costs were categorized into "special" reinforcement and "normal" reinforcement. The costs of the former are those associated with specific major reinforcements of the system and are amortized over a period of 10-20 years. The normal reinforcement costs are the residual of the total identified reinforcement costs after the special reinforcement costs are deducted. The historical average for the special and normal reinforcement costs will then be used as the normalized amount to be included in the portfolio analysis as a percentage of the total capital expenditure in the year.

2.3.8 The Board finds the proposed treatment of reinforcement costs to be included in the Investment Portfolio as proposed in the ADR Agreement appropriate for overall portfolio analysis purposes. Union currently includes an allowance related to the carrying costs for advancement of reinforcement expenditures resulting from a new project and the Board finds this approach to be appropriate.

2.3.9 The Board does not agree that a design target of zero NPV and a P.I. of 1.0 is appropriate given the forecast risks inherent in the Investment Portfolio analysis. As the Investment Portfolio NPV

approaches zero the marginal projects will be those with long cash flow break-even periods. Such projects require subsidy for long periods and hence increase short term rate impacts disproportionately.

- 2.3.10 In addition, the Board notes that the Investment Portfolio includes the costs and revenues associated with attaching customers to existing mains (i.e. mains constructed prior to any given test year). These projects by their nature will be more profitable for the utilities, since the costs of the mains are not included in the Investment Portfolio calculation. The Board concludes that the Investment Portfolio should be designed to achieve a positive NPV including a safety margin (for example, corresponding to a P.I. of 1.10). The Board believes that a portfolio designed in this way will minimize the forecast risks and hence more likely achieve the desired results of no undue rate impacts.

Rolling Project Portfolio

- 2.3.11 The Board also accepts the ADR Agreement proposal to maintain a Rolling Project Portfolio. The Rolling Project Portfolio provides an ongoing method of determining the financial feasibility and rate impact of expansion projects over a previous 12 month period. The Rolling Project Portfolio excludes the costs and revenues associated with new customers attaching to mains built prior to the last 12 month period. The Rolling Project Portfolio also provides a basis to compare a utility's Investment Portfolio with actual system expansion. Union has used a Rolling Project Portfolio approach for some time and has filed rate impacts from significant individual projects in its rates cases (e.g. E.B.R.O. 493/494 Exhibit B1, Tab 4, Appendices C and D).

- 2.3.12 As noted above the Board finds the proposed treatment for reinforcement costs to be included in the Rolling Project Portfolio to be appropriate.

- 2.3.13 The Board finds the Rolling Project Portfolio as proposed by the utilities to be a useful management tool. This Portfolio provides a mechanism for facilitating review of the financial status of overall distribution system expansion at the time that individual major projects are before the Board for either franchise and certificate approval, or for approval of leave to construct and also for monitoring purposes.

- 2.3.14 The Board has previously expressed its position that inclusion in the Investment Portfolio, of revenues and costs for infill customers connecting to existing mains may provide a mismatch between periodic costs and revenue. The Board notes that the Rolling Project Portfolio, which is the utilities' primary management tool, does not include such infill customers. Therefore, the Board finds that the Rolling Project Portfolio does provide appropriate matching and that an NPV of zero (or greater) is appropriate.

3. COMMON METHODS FOR FINANCIAL FEASIBILITY ANALYSIS

3.1 INTERIM REPORT CONCLUSIONS

- 3.1.1 *The Board believes that a further review of the methodology to be used by the utilities in assessing the project and portfolio financial feasibility is necessary. Among the factors to be considered are the period for new attachments and the time period over which the DCF analysis is calculated. The Board expects utilities to develop common methods for the Stage I Financial Feasibility test that will be used to show whether or not each utility's portfolio of distribution system expansion projects is profitable.*

3.2 POSITIONS OF THE PARTIES

- 3.2.1 The ADR Agreement set the following parameters for the DCF analysis:

- (a) Customer Attachment Horizon

A maximum 10 year forecast horizon will be utilized. For customer attachment periods of greater than 10 years an explanation of the extension of the period will be provided to the Board.

- (b) Customer Revenue Horizon

The maximum customer revenue horizon shall be 40 years from the in-service date of the initial mains, except for large volume customers where the maximum shall be 20 years from the customers' initial service.

- (c) Discount Rate

The Utilities' incremental after-tax cost of capital will be used for the discount rate. This will be based on the prospective capital mix, debt and preference share costs, and the latest Board approved equity return levels.

- (d) Discounting

Discounting will reflect the true timing of expenditures. Up-front capital expenditures will be discounted at the beginning of the project year and capital expended

throughout the year will be mid-year discounted, as will revenue, gas related costs, and operating and maintenance expenditures.

(e) Operating and Maintenance Expenditures

The incremental costs directly associated with the attachment of new customers to the system will be included in the operating and maintenance expenditures.

(f) Gas Costs

In the near term, the weighted average cost of gas ("WACOG") will continue to be the proxy for gas costs (gas costs shall be WACOG less the commodity portion of the gas costs). This approach may not be appropriate in the case of projects for large customers, where a specific gas cost forecast may be required.

3.2.2 The parties to the Dissent Document submitted the ADR Agreement was deficient in that the utilities had not agreed on a common method for calculating their P.I.s; that a 40 year revenue horizon may result in existing customers paying undue rate increases; and that 40 years is inappropriate in the absence of shareholder responsibility for forecast variations.

3.2.3 The Dissent Document also stated that the utilities were understating the costs in the financial feasibility analysis, since they are not using incremental costs for gas storage and transportation services, but have proposed that gas costs be WACOG less the commodity portion of gas costs.

3.2.4 The Dissent Document proposed:

- a customer attachment horizon no longer than 5 years (unless there is a specific contract);
- a maximum time period for the DCF calculation of 20 years from the in-service date of the initial main for large volume customers and between 20 and 30 years for small volume customers;
- customer use volumes representing the best estimates of the gas consumption for new customers; and
- the inclusion of incremental costs associated with gas storage and TransCanada PipeLines Limited transmission.

3.3 BOARD'S COMMENTS AND FINDINGS

3.3.1 The Board notes that the utilities have undertaken to apply consistent business principles for the development of the elements of the financial feasibility test. These elements include: customer attachment horizon, customer revenue horizon, discount rate and timing, operating and maintenance expenditures, and weighted average gas costs.

130

3.3.2 The Board notes that the proposed customer attachment forecast horizon of 10 years is a maximum and adopts this as part of the Guidelines in Appendix B[247].

131

3.3.3 The Board is concerned that a customer revenue horizon of 40 years will encourage inclusion of projects with very long cash flow break-even periods and hence high levels of subsidy in the early years. The Board has addressed this issue as part of the design targets for the Investment Portfolio.

132

3.3.4 The Board concludes that, although theoretically correct, the inclusion of forecast incremental costs for the transportation and storage of gas will add unnecessary complexity to the DCF calculations for distribution system expansion projects.

133

3.3.5 The Board finds however that the methodology should include a standard test or measure to assess short term rate impacts at the Portfolio level. This would be similar to the Rate Impact Measure ("RIM") Test used to evaluate Demand Side Management ("DSM") programs, with the objective of allowing comparisons from year to year and, to a degree, among the separate portfolios of the utilities.

Was page 16 134

3.3.6 The Board accepts that the DCF calculation will be based on a set of common elements as proposed in the ADR Agreement. These common elements will be reflected in the DCF analysis for the Investment Portfolio and the Rolling Project Portfolio filed by each of the utilities in its rates cases, the details of which are set out in Appendix B[247].

135

4. CUSTOMER CONNECTION AND CONTRIBUTION POLICIES

4.1 INTERIM REPORT CONCLUSIONS

4.1.1 *In the last few years, the Board has approved contributions in aid of construction in the form of periodic contribution charges for residential and small commercial customers in order to improve the profitability of projects when the P.I. or benefit to cost ratio is less than 1.0.*

4.1.2 *The Board notes that accidents of timing and geography can ... lead to inequitable situations where some ratepayers in similar situations may not have to pay a contribution while others are required to pay contributions.*

4.1.3 *The Board realizes that customers have indicated their willingness to contribute towards the cost of projects that are not financially feasible in order to obtain gas service. The Board also notes that there may be communities that would be so costly to serve and the P.I. so low that they are unlikely ever to be included in the portfolio. The Board accepts that in these special circumstances a contribution in aid of construction from a community would be acceptable on a case by case basis, but the Board will not expect the utilities to require contributions from all projects which do not meet a threshold P.I. of 1.0. In light of these considerations, the Board expects the utilities to prepare common guidelines on the treatment of customers currently paying periodic contribution charges.*

4.1.4 *The Board will review in the next phase of this proceeding the utilities' policies on requiring contributions in aid of construction where dedicated facilities are being constructed primarily for a single customer. In this regard the Board is interested in a policy that deals with all customer classes and expects the utilities to prepare a policy that is common among the utilities.*

4.2 POSITIONS OF THE PARTIES

4.2.1 The ADR Agreement states that the utilities will accept contributions in aid of construction for communities or projects that would otherwise not likely be included in the portfolio.

4.2.2 The ADR Agreement also proposed that existing contractual arrangements for the collection of contributions continue with the exception of Consumers Gas' projects for which contributions would be adjusted to achieve a P.I. of 0.8.

4.2.3 The ADR Agreement did not propose a definition to be used in determining when a facility is to be considered "dedicated".

4.2.4 The Dissent Document does not address the issue of customer contribution policies.

4.3 BOARD'S COMMENTS AND FINDINGS

4.3.1 The Board notes that the utilities wish to retain the ability to accept contributions in aid of construction for communities or projects that would not otherwise be included in the portfolio. However, no cost limits or P.I. thresholds have been recommended by the parties to assist the utilities in making such decisions. As stated in the Interim Report, the Board believes that the utilities should continue to make decisions on contributions in an even handed manner.

4.3.2 The Board recognizes that Union and Centra have been applying a P.I. threshold of 0.8 for the collection of customer contributions for new community attachments. The Board also notes that the utilities proposed this level as the basis for determining the treatment of customers currently paying periodic contributions. In order to ensure fairness and equity in the application and design of contribution requirements, the Board finds that all projects must achieve a minimum threshold P.I. of 0.8 for inclusion in a utility's Rolling Project Portfolio.

4.3.3 The Board directs the utilities to prepare and maintain a common set of Board-approved customer connection policies that shall, as a minimum, include:

- i. the circumstances under which customers will be required to pay for all, or part, of their service line connection, including the specific criteria and the quantum of, or formula for calculating, the total or excess service line fees and other charges; and
- ii. the circumstances where the use of a proposed facility will be dominated by one or more large volume customers for which the utilities will retain the option of collecting contributions in aid of construction. The contribution amounts will be consistent with the cost allocation for such mains and accordingly based on the peak day demand and the cost allocators used by each of the utilities.

4.3.4 The Board agrees with the parties that the common criteria for contributions in aid of construction should apply to all customer classes. If there is a reasonable expectation of further expansion, the contribution in aid of construction is expected to take into account the future load growth potential and timing of any such expansion.

4.3.5 The Board expects the utilities to bring forward common proposals for customer connection and contribution policies for Board approval. These proposals will be reviewed in each of the utilities' rate cases.

Blank page

5. ENVIRONMENTAL PLANNING REQUIREMENTS FOR SYSTEM EXPANSION

5.1 INTERIM REPORT CONCLUSIONS

5.1.1 *The Board requires that for all distribution projects, the utilities prepare a display of alternatives (routes and sites) which would show the various trade-offs between customer attachments and environmental, social and financial costs. The Board expects the utilities to prepare common guidelines on how to conduct and document the evaluation of their route selection and to apply these to all expansion projects.*

5.1.2 *The Board also expects the utilities to appropriately apply the [Board's] Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in the Province of Ontario, Fourth Edition, 1995[12JF6-0:1] ("the Environmental Guidelines") to all distribution system projects whether or not they involve a facilities application to the Board. The Board believes that the type and level of detail of the environmental investigations conducted by the utilities should be determined on the basis of environmental significance, and not on whether or not a particular application comes before the Board, whether a proposed pipeline is a distribution or transmission line, or whether or not the line will be located in a town. The utilities should conduct and document the necessary investigation and develop mitigation measures where significant environmental features are encountered. It is expected that the utilities will not require additional resources to undertake these investigations.*

5.1.3 *The utilities will have to confirm in their rates cases that all proposed projects meet the guidelines on route selection and the Environmental Guidelines and if not, why not. In addition, for facilities applications, the Board expects the utilities to file the project specific route selection display and environmental report. The Board expects that the utilities may incorporate the route selection evaluation into their environmental report.*

5.1.4 *The requirements to conduct and document the evaluation of the route selection and to apply the Environmental Guidelines to all distribution projects will be incorporated in the Environmental Guidelines.*

5.1.5 *In facilities applications the utilities will also have to continue to satisfy the Board on the design and construction practices and costs for the project. In addition, the Board will have to be satisfied that landowner concerns have been met and that any necessary permits have been obtained.*

5.2 POSITIONS OF THE PARTIES

5.2.1 *The ADR Agreement proposed that whenever a need for gas is identified, and a reasonable source is available, an evaluation would be done on whether this need could be accommodated. Full infor-*

mation on service alternatives would be gathered, including potential customers served, the running line location, construction costs and environmental and socio-economic concerns.

165
5.2.2 In selecting a preferred route, the ADR Agreement stated that standard environmental guidelines will be used for dealing with most environmental features. Significant environmental features (those not covered by the utilities' standard environmental guidelines) will require separate evaluation and may require public meetings and agency consultation.

166
5.2.3 The ADR Agreement proposed that costs of avoiding significant environmental features or mitigating significant environmental impacts will be included in the cost and benefit analysis for the project. For projects with similar economic benefits, routes that avoid significant environmental features will be preferred. Generally, routes with the greatest economic benefits overall will be preferred, subject to the environmental considerations described above.

167
5.2.4 The parties to the Dissent Document submitted that the ADR Agreement is not consistent with the Board's Interim Report because:

168
i. the utilities have not yet developed common guidelines on how to conduct and document the evaluation of their route selection; and

169
ii. according to the ADR Agreement, the utilities can select a route that will cause significant harm to the local environment if the route's economic benefits exceed its costs to the environment.

170
5.2.5 The parties to the Dissent Document proposed that the utilities be required to prepare and apply common guidelines on how to conduct and document the evaluation of their route selections to all expansion projects.

171
5.2.6 Energy Probe, the Green Energy Coalition, and Pollution Probe proposed that the utilities should be required to adopt as a principle that there should be "no net loss" of local environmental resources as a result of their system expansion activities. Where a utility is unable to offset the environmental impacts of its system expansion activities, the utility should make best efforts to create an offsetting environmental resource to meet the "no net loss" principle.

172 5.3 BOARD'S COMMENTS AND FINDINGS

173
5.3.1 The Board notes that a move to a portfolio planning and management approach may result in less public scrutiny of the financial and economic evaluation of individual system expansion projects. However this does not imply that there should be any decrease in the necessary level of environmental assessment of projects by the utilities, or the documentation of this work, as these matters will continue to be reviewed by the Board.

5.3.2 The planning principles described in the Board's Environmental Guidelines shall also apply to distribution expansion projects undertaken by the utilities. The level of detail required, the degree of public consultation and the level of alternative route/site evaluation should be determined by the utilities in a manner consistent with the Environmental Guidelines based on a review of the environmental (biophysical and socio-economic) significance of features potentially impacted by a proposed project. Environmental significance is to be determined based on the expected impacts of a particular project, not on whether the feature is covered by the utility's environmental guidelines.

Was page 24 175

5.3.3 To assist in determining what level of planning, investigation and reporting is necessary, the Board finds that the utilities shall jointly develop a common set of environmental screening criteria to determine if significant environmental features may be impacted during the construction or the operation of the facility. Corresponding planning, documentation, and reporting requirements are to be jointly developed and applied by each utility depending on the impacts expected as determined through the screening process. The criteria and corresponding requirements can be in the form of a checklist. The Board will review the screening criteria and the corresponding planning, documentation and reporting requirements for inclusion in the Environmental Guidelines. The Board expects the utilities to submit this material to the Board by June 1, 1998.

176

5.3.4 Once the study area for the project is determined, a regional officer of the utility who is familiar with the study area and has been trained in environmental matters shall identify potential impacts through the screening process and determine the level of planning required. Depending on the significance of the potential impacts anticipated, the decision on the level of planning may involve additional environmental specialists of the utility, external consultants and other affected parties.

177

5.3.5 Depending on the level of significance of the environmental feature(s) encountered, the planning may involve alternative routing/siting considerations, detailed mitigation requirements and/or public and/or agency review. It is expected that the criteria and requirements will be updated from time to time by the utilities in consultation with other interested parties and reviewed by the Board for inclusion in updated Board Environmental Guidelines.

Was page 25 178

5.3.6 Where alternative routes or sites are investigated, the Board expects that the preferred alternative will be chosen based on an optimization of the particular environmental, social and financial criteria for the project. Decisions on the relative importance of these criteria are to be made based on the specific environmental features encountered and their significance, rather than deciding in advance that financial criteria have priority.

179

5.3.7 In those cases where the significance of environmental features may be in question or the planning requirements are not clear, the utilities are expected to consult with environmental specialists, Board Staff and affected parties. The Board expects that as experience is gained, consultation will be necessary only in unusual cases. In all cases however, it is expected that provincial and local agency requirements (permits, licences) shall be obtained where necessary and that the utilities will apply their standard guidelines, drawings, and specifications.

Report of the Board

5.3.8 The Board finds that further examination of the "no net loss" principle is unnecessary in this proceeding in light of the Board's specified environmental planning requirements.

Blank page

Was page 26 181

6. MONITORING AND REPORTING REQUIREMENTS

6.1 INTERIM REPORT CONCLUSIONS

6.1.1 *The Board also expects the utilities to develop proposals on the appropriate method to use to monitor the variation between forecast and actual profitability of their distribution system expansion portfolios.*

6.1.2 *Despite the advantages of a portfolio approach, the Board is of the view that certain containment practices should be put in place in order to ensure that:*

- *ratepayers are protected from financially risky decisions on expansion by the utilities;*
- *the utilities make decisions on which projects should proceed in an even-handed manner;*
- *the cumulative impact on rates is not undue in any given year;*
- *the continued expansion of natural gas service is in the overall public interest; and*
- *the economic inefficiencies implicit in including projects with negative P.I.s do not outweigh the public interest benefits of the portfolio approach.*

6.1.3 *Utility shareholders will be held responsible for any significant variation in the forecast of customer attachments, volumes and costs from the aggregate portfolio. The Board expects the utilities to make proposals in the next phase of this proceeding on how variances from the aggregate forecast should be treated in order to appropriately share the risk between ratepayers and shareholders. In considering how the risk should be shared, the utilities may want to review their policies on obtaining financial assurances from new large volume customers.*

6.1.4 *The Board also expects the utilities to develop proposals on the appropriate method to use to monitor the variation between forecast and actual profitability of their distribution system expansion portfolios.*

6.1.5 *However, the Board finds that it is in the public interest to require the utilities to demonstrate that it continues to be in the overall public interest to expand the natural gas distribution systems from an aggregate economic, social and environmental point of view. Therefore, the Board will require utilities to file the results of a societal cost test ["SCT"] of their overall portfolios of distribution system expansion when seeking approval of their portfolios. The societal cost test could include monetized, non-monetized and qualitative components. To this end, the Board requests the utilities*

to develop a common evaluation method, that would be cost-effective, that would adequately characterize performance, and that would be relatively straightforward to apply.

6.1.6 *The Board expects the utilities to develop common reporting requirements so that the utilities' forecast P.I.s, customer attachments, volumes and costs can be compared to actuals on a portfolio basis and, if need be, on a project specific basis. This information shall be put on the record in the rates cases to serve as a benchmark.*

6.1.7 *The Board expects that under the portfolio approach the Stage I financial feasibility P.I. will be calculated for each proposed project as well as for the portfolio of infill projects. For the purposes of calculating the P.I. of the infill portfolio, infill projects are defined as the extension of mains and service attachments in existing service areas, but does not include service lines to individual customers off existing mains.*

6.1.8 *All the P.I.s of the proposed projects and the infill portfolio will be aggregated to calculate the overall portfolio P.I. at a given time for each utility.*

6.2 POSITIONS OF THE PARTIES

6.2.1 The ADR Agreement proposed that the utilities file Test Year and Historic Year information as part of their rates cases. This information would include the capital amounts, profitability and rate impacts of the Investment Portfolio and the Rolling Project Portfolio; actual expenditures on reinforcement costs; and specific customer attachment information on a set of randomly selected projects.

6.2.2 The ADR Agreement also proposed that each utility file in its rate case a projected NPV of the results of a SCT for the Investment Portfolio for the test year. The results would be presented both with and without monetized externality costs and benefits.

6.2.3 The parties to the Dissent Document submitted that the ADR Agreement fails to meet the Board's direction in the Interim Decision because:

- the ADR Agreement does not require the utilities to report the P.I.s of their Investment Portfolios or any individual project within their Investment Portfolios;
- the ADR Agreement does not require the utilities to report the forecast aggregate NPV and P.I. of the test year's projects that have negative P.I.s (information necessary to address the Board's concern with respect to economic efficiency); and
- the ADR Agreement does not require the utilities to put on the record in their rates cases project specific P.I.s, customer attachments, volumes and cost data so that project specific information can serve as a benchmark for monitoring performance on an on-going basis.

6.2.4 The parties to the Dissent Document further submitted that the ADR Agreement fell short because:

- there is no commitment to provide a comparison of actual and forecast volumes; 205
- there is no commitment to provide a comparison of actual and forecast capital expenditures for the Investment Portfolio; and 206
- the utilities are only committed to providing a comparison of their actual and forecast customer attachments for the first three years of a project's life, which does not cover the remaining 7 years in a project's 10 year customer attachment forecast period. 207

The parties to the Dissent Document proposed that the utilities should be required to file portfolio and project specific information for the historic, bridge and test years. 208

Was page 30 209

6.3 BOARD'S COMMENTS AND FINDINGS

6.3.1 The Board believes that the principles outlined in the Interim Report should form the basis of the monitoring and reporting requirements. 210

Rate Case Review 211

6.3.2 The Board directs that the utilities file, in their respective rates cases, a forecast NPV and P.I. of the test year Investment Portfolio. In subsequent rates cases, each utility will report to the Board on the actual results of the Investment Portfolio. 212

6.3.3 The actual results of the Investment Portfolio will present the NPV and the P.I. taking into account the capital spent, the number of customers attached and the revenues received from the customers attached in the most recent historical year for which there is full data. Volume usage for larger commercial and industrial customers will be individually estimated to more closely reflect actual annual volumes. 213

6.3.4 Each utility will, in its rates case, provide an analysis of the estimated rate impact of its Investment Portfolio in the first five years of service. As referred to earlier, the Board found the material filed by Consumers Gas in E.B.R.O. 495 at Exhibit I, Tab 7, Schedule 8, to be a good example of the information necessary, but would be further assisted if the impacts were broken down by rate class. The Board directs that such a breakdown be included in the required impact analysis. 214

6.3.5 As noted earlier, the Board also wishes the utilities to use a standard rate impact test or measure similar to the R.I.M. test used to assess DSM program impacts. This measure should present the following information in aggregate and by rate class: 215

Was page 31 216

- impact of the Investment Portfolio cash flow on the test year revenue deficiency; and

217

- the ratio of incremental revenues to costs in the test year and subsequent three years.

218

6.3.6 The Board notes that in recent rates cases both Centra and Consumers Gas have significantly over-spent their Board-approved capital budgets, particularly in the bridge year. In its E.B.R.O. 493/494 Decision the Board set out the criteria of *affordability* and *rate stability* as key factors affecting the capital budget and additions to rate base, which the Board will consider in assessing prudence of expenditures.

219

6.3.7 The Board notes that the addition of capital for assets such as Information Technology and Customer Information Systems may have significant impacts on both the level of capital expenditure and year to year additions to rate base. The Board in its E.B.R.O. 493/494 Decision suggested that affordability criteria be applied to develop ceilings for capital expenditures and rate stability criteria be used to manage the scheduling of expenditures on more discretionary projects in conjunction with system expansion projects. In addition, in E.B.R.O. 495 the Board expressed its concern about the upward pressure on rates resulting from continual system expansion, and concluded that, for ratemaking purposes, expenditures above overall Board-approved levels in various categories ("envelopes") of the capital budget could not automatically be included in the Company's proposed rate base for the next fiscal year. In addition, the Board cautioned that the Company would be required to prove the reasonableness of its capital expenditures within each envelope, even if the expenditures were at or below the Board approved level.

220

6.3.8 The Board expects that the concerns raised in these recent rate cases regarding affordability and rate stability will be addressed in the utilities' plans under the portfolio approach.

221

6.3.9 The Board will treat variances between actual and forecast portfolio NPVs in the same manner as for other forecast test year variables. The utilities will provide explanations of the reasons for the variations and the corrective actions taken or proposed. The Board will judge the degree to which the cost impacts should be apportioned between the shareholder and the ratepayers.

Was page 32 222

6.3.10 The Board agrees with the ADR proposal for portfolio level SCT analysis, monitoring and reporting, using a test that is consistent with the treatment of the SCT for DSM.

223

Ongoing Monitoring and Reporting

224

6.3.11 The Board notes that the primary purposes of the Guidelines in Appendix B[247] are to streamline the process of approval of system expansion projects and achieve a commonality of approach between the utilities, while ensuring that ratepayers are protected against the impacts of either over-aggressive, or financially inappropriate, system expansion by the utilities.

225

6.3.12 The Board believes that the achievement of these objectives requires periodic standardized reporting to the Board, as well as the filing of information in rate cases in order to allow the prudence of

the utilities' actions and rate impacts to be reviewed. These reviews should appropriately be rate focussed with account taken of both short-term and long-term costs and benefits to ratepayers.

6.3.13 The Board considers that, in general, the ADR Agreement proposals in the section *Monitoring the Performance of the Portfolios/Short Term Rate Impacts*, provide a reasonable point of departure and that experience should show whether the content and timing of the monitoring and reporting requirements are adequate. The Board will require filing of the P.I.s of the portfolios as well as the NPVs. The adjusted monitoring requirements are included in the Guidelines in Appendix B.

226

6.3.14 The Board emphasizes that the utilities must maintain clear records at a project specific level that will allow for inspection and/or reporting of individual projects as may be deemed necessary from time to time.

227

6.3.15 The Board will require quarterly filing of the monthly reports on the Rolling Project Portfolio and total capital expenditures in order to monitor performance.

Was page 33 228

6.3.16 The approach to environmental planning outlined above should simplify the documentation requirements. The sampling process and reporting required in the Guidelines will ensure consistency across projects and between utilities and ensure compliance with the Board's environmental planning requirements.

229

Blank page

Was page 34 230

7. COMPLETION OF THE PROCEEDING AND COSTS

7.1 COMPLETION OF THE PROCEEDING

7.1.1 The Board has reviewed the letters of comment setting out the positions of various parties on the ADR Agreement and the Dissent Document. The Board is of the view that it would not be in the public interest at this stage to hold additional hearings on this matter. Rather, the Board believes that the public interest is better served by proceeding with the implementation of the Guidelines included in Appendix B[247] of this Report.

7.1.2 The Board directs that the Guidelines shall be implemented as soon as possible, but no later than the 1999 fiscal year for each of the utilities. The Guidelines will be subject to future review by the Board in the light of experience gained in their application.

7.2 COSTS

7.2.1 In the Board's Interim Decision of August 15, 1996 the parties to the proceeding were directed to submit cost claims for that phase of the proceeding. The Board made an interim cost award to those parties requesting one.

7.2.2 The Board directs all parties who wish to do so, to submit their final claim for costs with the Board and a copy to each of the utilities, taking into account the interim cost award (if applicable) by February 20, 1998. Comments from the utilities are to be filed by March 2, 1998 and reply by parties by March 16, 1998. The Board will issue its Cost Award Decision and Order in this proceeding in due course.

7.2.3 The Board directs the utilities to pay the Board's costs of, and incidental to the proceeding upon receipt of the Board's invoice.

7.2.4 The Board directs that all costs be apportioned on a 50:50 basis between Consumers Gas and Union/Centra Gas.

DATED AT TORONTO January 30, 1998.

G.A. Dominy
Vice Chair and Presiding Member

R.M.R. Higgin
Member

J. B. Simon
Member

APPENDIX A

Parties Concurring with the ADR Agreement

242

Board Staff
City of Kitchener
The Consumers' Gas Company Ltd.
Consumers' Association of Canada
Federation of Northern Ontario Municipalities
Northwestern Ontario Municipal Association
Ontario Federation of Agriculture*
Ontario Pipeline Landowners Association*
Ontario Coalition Against Poverty
Union Gas Limited and Centra Gas Ontario Inc.*

243

Parties Substantially Supporting the Dissent Document

244

Canadian Industry Program for Energy Conservation*
Canadian Association of Energy Service Companies
Energy Probe
Green Energy Coalition*
Industrial Gas Users Association*
Heating, Ventilation, Air Conditioning Contractors Coalition Inc.
Ontario Native Alliance
Pollution Probe

245

* Letter of Comment Received

246

APPENDIXB ONTARIO ENERGY BOARD GUIDELINES FOR ASSESSING AND REPORTING ON NATURAL GAS SYSTEM EXPANSION IN ONTARIO

1998 248

Was Appendix, preliminary page 3 249

CONTENTS

I.	OVERVIEW - PURPOSE AND OBJECTIVE OF THE GUIDELINES	250
1.	SYSTEM EXPANSION PORTFOLIOS	251
2.	STANDARD TEST FOR ECONOMIC FEASIBILITY	252
3.	MONITORING PORTFOLIO PERFORMANCE AND SHORT RATE IMPACTS	253
4.	CUSTOMER CONNECTION AND CONTRIBUTION POLICIES	254
5.	ENVIRONMENTAL REQUIREMENTS FOR DISTRIBUTION SYSTEM EXPANSION PROJECTS	255
6.	DOCUMENTATION, RECORD KEEPING AND REPORTING	256
SCHEDULE1	DISCOUNTED CASH FLOW METHODOLOGY	257

Was Appendix, page 1 258

I. OVERVIEW - PURPOSE AND OBJECTIVE OF THE GUIDELINES

The Ontario Energy Board ("OEB", "Board") Guidelines for Assessing and Reporting on Natural Gas System Expansion In Ontario ("The Guidelines") provide a common analysis and reporting framework to be applied by regulated Ontario Local Distribution Companies - Union Gas Limited and The Consumers' Gas Company Ltd. ("the utilities") to natural gas distribution system expansion. The principles upon which the Guidelines are based reflect the Board's conclusions in its Distribution System Expansion Reports under Board File No. E.B.O. 188. (Interim Report[12JM1-0:1] dated August 15, 1996; Final Report[1] dated January 30, 1998).

Portfolio Approach

The main change from prior policy and practice is the use of a portfolio approach, as opposed to a project-by-project approach, to the planning, analysis, management and reporting of distribution system expansion projects. The intent of the portfolio approach is to provide the utilities a greater degree of flexibility in determining which projects to undertake, while the Board retains overall regulatory control to ensure no undue cross subsidy or rate impacts result from distribution system expansion.

Financial Feasibility Analyses

The Guidelines provide the utilities with direction with respect to the structure of their system expansion portfolios and the methods for conducting financial feasibility analyses at both the individual project level and the portfolio level. The Guidelines standardize the elements to be used in the discounted cash flow ("DCF") analysis as well as establish the parameters for the costs and revenues that are the inputs to that analysis.

Reporting

The Guidelines establish a mechanism to evaluate the performance of each of the utilities' distribution expansion activities on a portfolio basis and on an individual project basis. The Guidelines also outline reporting requirements for system expansion plans and post expansion impacts. The forecast rate impacts of a utility's expansion plans will be presented in rates case filings on a prospective test year basis.

These reporting requirements are intended to provide the Board and interested parties with sufficient information to monitor the utilities' expansion activities and their associated rate impacts. The performance of the utilities related to implementation of these Guidelines will be evaluated as part of each utility's rates case.

Customer Connection Policies

Part of the utilities' management of distribution system expansion will be the provision of common customer connection policies. These will include policies relating to service line fees, customer contributions to otherwise financially unfeasible projects and for projects dominated by one or more large volume customers.

Environmental Considerations

To ensure that the utilities plan and construct system expansion facilities in an environmentally acceptable manner, the Guidelines also address the routing and environmental planning, documentation and reporting requirements for distribution expansion projects.

1. SYSTEM EXPANSION PORTFOLIOS

1.1 Investment Portfolio

Each of the utilities will group into a portfolio (the "Investment Portfolio") the costs and revenues associated with all new distribution customers who are forecast to attach in a particular test year (including new customers attaching to existing mains). The Investment Portfolio is to include a forecast of normalized system reinforcement costs.

The Investment Portfolio will be designed to achieve a profitability index ("PI") *greater* than 1.0.

1.2 Rolling Project Portfolio

Each of the utilities will maintain a rolling 12 month distribution expansion portfolio (the "Rolling Project Portfolio") updated monthly, as an ongoing management tool for estimation of the future impacts of capital expenditures associated with distribution system expansion. The Rolling Project Portfolio will exclude those customers requiring only a service lateral from an existing main.

The utilities will calculate monthly the cumulative result of project-specific DCF analyses from the past twelve months for the Rolling Project Portfolio. It will include all future customer attachments, revenues and costs on the basis of the life cycle of each of the projects making up the Portfolio.

2. STANDARD TEST FOR FINANCIAL FEASIBILITY

The standard test for determining the financial feasibility at both the project and the portfolio level will be a DCF analysis, as set out below.

2.1 DCF Calculation and Common Elements

The DCF calculation for a Portfolio will be based on a set of common elements. For revenue forecasting, the common elements will be as follows:

- (a) for the Rolling Project Portfolio, total forecasted customer attachments over the Customer Attachment Horizon for each project;
- (b) for the Investment Portfolio, a forecast of all customers to be added in the Test Year;
- (c) an estimate of average use per added customer which reflects the mix of customers to be added;

(d) a factor which reflects the timing of forecasted customer additions; and

(e) rates derived from the existing rate schedules for the particular utility, net of the gas commodity component.

Was Appendix, page 4 286

For capital costs, the common elements will be as follows:

(a) an estimate of all costs directly associated with the attachment of the forecast customer additions, including costs of distribution mains, services, customer stations, distribution stations, land and land rights;

(b) an estimate of incremental overheads applicable to distribution expansion at the portfolio level; and

(c) an estimate of the normalized system reinforcement costs.

For expense forecasting, the common elements will be as follows:

(a) gas costs as used in revenue forecasts (excluding commodity costs);

(b) incremental operating and maintenance costs;

(c) income and capital taxes based on tax rates underpinning the existing rate schedules; and

(d) municipal property taxes based on projected levels.

2.2 Specific Parameters

Specific parameters of the common elements include the following:

(a) a 10 year customer attachment horizon;.

(b) a customer revenue horizon of 40 years from the in service date of the initial mains (20 years for large volume customers);

(c) a discount rate equal to the incremental after-tax cost of capital based on the prospective capital mix, debt and preference share cost rates, and the latest approved rate of return on common equity;

- (d) discounting reflecting the true timing of expenditures. Up-front capital expenditures will be discounted at the beginning of the project year and capital expended throughout the year will be mid-year discounted, as will revenue, gas costs, and operating and maintenance expenditures; and

302

- (e) gas costs based on the weighted average cost of gas ("WACOG") excluding commodity costs.

Was Appendix, page 5 303

3. MONITORING PORTFOLIO PERFORMANCE AND SHORT-TERM RATE IMPACTS

304

3.1 Rates Case Filings

305

The following information will be filed in each rates case:

306

Test Year

307

- (a) the Investment Portfolio, including NPV, the total capital in the portfolio and the portfolio PI;

308

- (b) an estimate of the aggregate NPV of all new facilities requiring a new franchise and/or certificate of public convenience and necessity and of all "infills" (i.e. main extensions and service attachments in existing service areas excluding service lines to customers off existing mains) based on extrapolated historical data;

309

- (c) an estimate of the Test Year rate impacts of the Investment Portfolio based on the:

310

- (i) contribution to annual revenue requirement;

311

- (ii) Rate Impact Measure presented as the ratio of added revenue to costs for each customer class; and

312

- (iii) class-specific estimated percent rate and annual average bill increases.

313

- (d) estimates of the NPV and the benefit-cost ratio for the Investment Portfolio using a Societal Cost Test ("SCT"), defined in the Report of the Board, E.B.O. 169 III, as an evaluation of the costs and/or benefits accruing to society as a whole, due to an activity. The SCT analysis should be consistent with that used for the utilities' DSM programs. The benefit-cost ratio shall be presented with and without monetized externalities.

Historic Year:

- (a) the Historic Year Investment Portfolio, including the NPV, total capital in the portfolio, and the portfolio PI; 315
- (b) the aggregate NPV, the total capital, and the portfolio PI for: 316
 - (i) the Rolling Project Portfolio at the end of the historic year; 317
 - (ii) all completed projects with negative NPVs; 318
 - (iii) all completed projects with positive NPVs; 319
- (c) upon the request of the Board, a list of the projected results of individual extensions included in the Rolling Project Portfolio; 320
- (d) actual expenditures on reinforcement projects; and 321
- (e) the rate impact of the Historic Year Investment Portfolio reflecting actual capital expenditures and customer related data. 322
Was Appendix, page 6

3.2 Ongoing Monitoring Information 323

The utilities shall establish a process to allow the Board to monitor the performance of their distribution system expansion project portfolios including financial and environmental requirements. 324

A. Financial Monitoring 325

In consultation with Board Staff, the utilities shall select projects from their Rolling Project Portfolios on an annual basis and shall file the following with respect to the sample: 326

- (a) the cumulative number of customers attached at the end of the 3rd full year and the associated revenues and costs; and 327
- (b) the corresponding year 3 customer attachment forecasts and associated revenues and costs. 328

B. Environmental Monitoring

In consultation with Board Staff, the utilities shall select a set of completed projects and file data on those projects on an annual basis as described below. The projects chosen should be selected in a random, stratified manner, reflecting the range of environmental impacts encountered in the time period and the various levels of environmental planning, documentation and reporting required. The selection should be reviewed by an independent auditing group within the utility, which group shall include (a) trained environmental auditor(s). The utility shall file the following with respect to each sample:

1. a description of how the project complied with the Board-approved environmental screening, planning, documentation and reporting requirements;
2. a table of significant features, how they were avoided or mitigated, and resulting impacts;
3. a table displaying the concerns raised by affected parties including member ministries of the Ontario Pipeline Coordination Committee, how they were addressed, and reasons for any outstanding concerns;
4. issues of significance arising from any post-construction monitoring;
5. where alternatives were investigated, a display of alternatives (routes/sites) which show the various trade-offs between customer attachments, and environmental, social and financial costs and a discussion of how the preferred alternative was chosen;
6. evidence that all necessary approvals (permits, licences) were obtained; and
7. forecast versus actual costs of the environmental planning.

Was Appendix, page 7

3.3 Risks of Non-performance

In the event that the actual results of the Investment Portfolio do not produce a positive NPV or a PI of at least 1.0, the following will occur:

- (a) the utility will be required to provide a complete variance explanation in its rates case and the Board will determine whether or not an acceptable explanation has been provided; and
- (b) the implications of a negative NPV or PI less than 1.0 will be determined by the Board on a case by case basis.

4. CUSTOMER CONNECTION AND CONTRIBUTION POLICIES

The utilities will maintain a clear set of common Board-approved Customer Connection and Contribution in Aid Policies. 343

The criteria for contributions in aid of construction for service lines and mains will apply to all customer classes. If there is a reasonable expectation of further expansion, the contribution in aid of construction will take into account the future load growth potential and timing of any such expansion. 344

The Customer Connection and Contribution in Aid Policies shall, as a minimum, include the following: 345

- Requirements for payment for all, or part, of a customer service line connection, including the specific criteria and the quantum of, or formula for calculating, the total or excess service line fees and other charges. 346
- Requirements for contributions in aid of construction for connection of individual customers, subdivisions or communities requiring main extensions that would not otherwise be included in the Investment or Rolling Project Portfolios. 347
- Requirements for contributions in aid of construction for expansion projects dominated by one or more large volume customers. 348

5. ENVIRONMENTAL REQUIREMENTS FOR DISTRIBUTION FOR SYSTEM EXPANSION PROJECTS 349

The planning principles described in the Board's "Environmental Guidelines for the Location, Construction, and Operation of Hydrocarbon Pipelines and Facilities In Ontario (1995)" shall also apply to distribution expansion projects undertaken by the utilities. The level of detail required, the degree of public consultation and the level of alternative route/site evaluation should be determined based on a review of the environmental (biophysical and socio-economic) significance of features potentially impacted by a proposed project. 350

The utilities shall apply environmental screening criteria to determine when significant features may be impacted during the construction or the operation of the facility. Corresponding planning, documentation, and reporting requirements are to be applied depending on the impacts expected as determined through the screening process. Was Appendix, page 8 351

Once the study area for the project is determined, a regional officer of the utility who is familiar with the study area and has been trained in environmental matters, shall identify potential impacts through the screening process and determine the level of planning required. Depending on the 352

significance of the potential impacts anticipated, the planning requirements may involve environmental specialists of the utility, external consultants or other affected parties.

All provincial and local agency requirements (permits, licences) shall be obtained where necessary and the utilities shall apply their standard guidelines, drawings, and specifications.

6. DOCUMENTATION, RECORD KEEPING AND REPORTING

The utilities will maintain documentation for all projects which are to be included in the Rolling Project Portfolio. A record of the DCF analysis conducted for each project in the Rolling Project Portfolio shall be available for review upon request of the Board. The performance tracking of individual projects shall be as described in Section 3 of these Guidelines.

The utilities will maintain a record of the environmental planning, documentation and reporting requirements associated with all projects and Environmental Reports for those projects deemed to have significant environmental impacts.

For all expansion projects in the Rolling Project Portfolio with a capital cost greater than \$500,000 ("major projects") the utilities shall file the NPV and DCF analysis in each rate case and shall keep a record of forecast and actual customer attachments for a period of three years after construction is completed. In addition, the utilities shall also file in each rate case, the NPV and DCF analysis for all major projects planned for the test year. Upon request of the Board, the utilities shall file forecast and actual customer attachments for major projects.

The utilities shall file quarterly with the Board Secretary, the updated monthly Rolling Project Portfolio results immediately upon completing the calculations.

SCHEDULE1 DISCOUNTED CASH FLOW METHODOLOGY

Was Appendix, schedule page 1

Net Present Value ("NPV") = *Present Value ("PV") of Operating Cash Flow + PV of CCA Tax Shield - PV of Capital*

Profitability Index ("PI") = *PV of Operating Cash Flow + PV of CCA Tax Shield*
(*PV of Capital*)

1. **PV of Operating Cash Flow** = *PV of Net Operating Cash (before taxes) - PV of Taxes*

Report of the Board

a PV of Net) Operating Cash = PV of Net Operating Cash Discounted at the Company's discount rate for the customer revenue horizon. Mid-year discounting is applied.

Net Operating Cash = *(Annual Gas Revenue - Annual Gas Costs - Annual O&M)*

Annual Gas Revenue = *Customer Additions * Consumption Estimates per Customer * Revenue Rate per m³*

Annual Gas Cost = *Customer Additions * Consumption Estimates per Customer * Gas Costs per m³ net of commodity costs*

Annual O&M = *Customer Additions * Annual Marginal O&M Cost/customer*

Was Appendix, schedule page 2 362

b PV of Taxes) = PV of Municipal Taxes + PV of Capital Taxes + PV of Income Taxes (before Interest tax shield)

Annual Municipal Tax = *Municipal Tax Rate * (Total Capital Cost)*

Total Capital Cost = *(Mains Investment + Customer Related Investment + Overheads at portfolio level)*

Annual Capital Taxes = *(Capital Tax Rate) * (Closing Undepreciated Capital Cost Balance)*

Annual Capital Tax = *(Capital Tax Rate) * (Net Operating Cash - Annual Municipal Tax - Annual Capital Tax)*

The Capital Tax Rate is a combination of the Provincial Capital Tax Rate and the Large Corporation Tax (Grossed up for income tax effect where appropriate).

Note: Above is discounted, using mid-year discounting, over the customer revenue horizon.

364

$$2. \text{ PV of Capital} = \text{PV of (Total Annual Capital Expenditures - Annual Contributions)}$$

a PV of Total Annual Capital Expenditures
)

Total Annual Capital Expenditures over the customer's revenue horizon discounted to time zero

$$\begin{array}{l} \text{Total Annual} \\ \text{Capital} \\ \text{Expenditure} \end{array} = \begin{array}{l} (\text{Mains Investment} + \\ \text{Customer Specific} \\ \text{Capital} + \text{Overheads at} \\ \text{the Portfolio level}) \end{array}$$

Was Appendix, schedule page 3 365

b Annual Contributions
)

$$\begin{array}{l} \text{Annual} \\ \text{Contributions} \end{array} = \begin{array}{l} \text{Cash payments (or} \\ \text{principal portions of} \\ \text{payments over time)} \\ \text{received as Contributions} \\ \text{in Aid of Construction} \end{array}$$

366

Note: Above is discounted to the beginning of year one over the customer addition horizon.

367

3 PV of CCA Tax Shield

PV of the CCA Tax Shield on [Total Annual Capital]

The PV of the perpetual tax shield may be calculated as:

$$\begin{array}{l} \text{PV at time zero of :} \\ \frac{[(\text{Income Tax Rate}) * (\text{CCA Rate}) * \text{Annual Total Capital}]}{(\text{CCA Rate} + \text{Discount Rate})} \end{array}$$

or;

Report of the Board

*Calculated annually and present valued in the PV of
Taxes calculation.*

Note: An adjustment is added to account for the $\frac{1}{2}$ year CCA rule.

368

369

4 Discount Rate

.

*PV is calculated with an incremental, after-tax
discount rate.*

Opportunity Assessment Summary - Updated

Row	Community Name	Communities	Potential Customers	Forecast Customers	Distance From Source (km)	Annual Volume (million m3)	Gross Capital Cost (millions)	Gross Capital/ Potential Customer	Natural PI*	Potential Annual Savings** (millions)	Including TES/ITE					
											Min PI= 0.4		Min PI= 0.5		Min PI=0.6	
											TES/ITE Months	CIAC Required (millions)	TES/ITE Months	CIAC Required (millions)	TES/ITE Months	CIAC Required (millions)
1	Milverton	1	818	526	21	1.64	\$4.77	\$5,827	0.32	\$1.31	48		48		50	
2	Prince Township, Sault Ste Marie	1	375	242		0.48	\$2.72	\$7,243	0.38	\$0.60	48		48		82	
3	Lambton Shores, Kettle Point First Nation	2	496	281	6	1.65	\$1.79	\$3,615	0.44	\$0.79	48		48		48	
4	Walpole Island First Nation - main commercial area	Removed from application														
5	Moraviantown First Nation- main commercial area	1	70	61	5	0.10	\$0.49	\$7,011	0.35	\$0.11	48		48		50	
6	Lagoon City (Orillia)	1	2,556	1,150	19	2.61	\$14.19	\$5,553	0.42	\$4.09	48		48		63	
7	Hidden Valley/Huntsville	1	100	46		0.10	\$0.65	\$6,452	0.38	\$0.16	48		48		72	
8	Santa's Village/Beaumont Dr, Bracebridge	1	133	60	6	0.14	\$0.86	\$6,470	0.36	\$0.21	48		49		84	
9	Canal, Gravenhurst	1	166	74	2	0.17	\$1.17	\$7,070	0.33	\$0.27	48		63		98	
10	Northshore Rd / Peninsula Rd North Bay	1	333	150		0.34	\$2.34	\$7,030	0.33	\$0.53	48		73		109	
11	Hornby	1	115	64	1	0.05	\$1.22	\$10,640	0.16	\$0.18	77		111		120	\$0.23
12	Oneida First Nation	1	466	210	5	0.48	\$2.20	\$4,720	0.28	\$0.75	48		72		96	
13	Auburn	1	108	49	8	0.11	\$0.53	\$4,878	0.27	\$0.17	48		61		86	
14	Cedar Springs	1	175	79	1	0.18	\$0.90	\$5,121	0.25	\$0.28	48		74		98	
15	Astorville	1	467	210	5	0.48	\$3.71	\$7,951	0.29	\$0.75	49		87		120	\$0.21
16	***Brenman Line, Severn Twp (Gravenhurst)	1	33	14	2	0.03	\$0.24	\$7,396	0.29	\$0.05	56		108		120	\$0.02
17	Nipissing First Nation / Jocko Point	1	467	210		0.48	\$3.92	\$8,383	0.28	\$0.75	60		97		120	\$0.44
18	***Munsee Delaware First Nation	1	42	19		0.04	\$0.27	\$6,412	0.21	\$0.07	63		96		120	\$0.02
19	Chippewa of the Thames First Nation- phase 3 & 4	1	110	50		0.11	\$0.72	\$6,556	0.21	\$0.18	64		97		120	\$0.06
20	Sheffield	1	120	54	3	0.12	\$0.78	\$6,496	0.20	\$0.19	70		99		120	\$0.07
21	Turkey Point	1	541	244	12	0.65	\$3.65	\$6,749	0.20	\$0.87	83		118		120	\$0.69
22	Rockton	1	125	57	4	0.13	\$0.88	\$7,072	0.19	\$0.20	79		112		120	\$0.16
23	Chippewas of the Saugeen	1	120	54	5	0.12	\$0.87	\$7,290	0.19	\$0.19	83		119		120	\$0.17
24	Washago	1	405	182	6	0.41	\$4.14	\$10,232	0.23	\$0.65	88		120	\$0.48	120	\$1.25
25	E Floral (T Bay area)	1	100	46	2	0.10	\$1.08	\$10,835	0.21	\$0.16	84		120	\$0.08	120	\$0.29
26	Haldimand Shores	1	150	68	6	0.15	\$1.80	\$12,011	0.20	\$0.24	105		120	\$0.16	120	\$0.37
27	Latchford, Tri Town	1	200	90	6	0.20	\$2.34	\$11,702	0.20	\$0.32	111		120	\$0.58	120	\$0.95
28	Belwood	1	768	346	17	0.78	\$5.79	\$7,538	0.18	\$1.23	95		120	\$0.61	120	\$1.71
29	Kincardine. Tiverton, Paisley, Chesley	4	8,331	4,250	87	13.31	\$66.25	\$7,952	0.23	\$15.12	84		120	\$1.90	120	\$15.74
30	***Little Longlac	1	14	7	1	0.02	\$0.25	\$17,882	0.16	\$0.02	120		120	\$0.07	120	\$0.11
31	Swiss Meadow	1	108	49	1	0.11	\$1.02	\$9,422	0.15	\$0.17	111		120	\$0.24	120	\$0.40
32	Boblo Island	1	300	136	1	0.31	\$2.66	\$8,875	0.15	\$0.48	117		120	\$0.72	120	\$1.14
33	Village of Warwick	1	150	69	13	0.30	\$1.48	\$9,896	0.14	\$0.24	120		120	\$0.41	120	\$0.64
34	Mohawks of the Bay of Quinte (Tyendinaga FN)	Removed from application														
35	Garden Village (Promenade-de-lac)	1	133	60		0.14	\$1.80	\$13,560	0.18	\$0.21	120	\$0.11	120	\$0.57	120	\$0.83
36	Sioux Narrows / Nester Falls	2	1,044	470		1.07	\$14.11	\$13,519	0.17	\$1.67	120	\$1.84	120	\$5.19	120	\$7.09
37	Wroxieter/Gorrie/Fordwich	3	810	364	26	0.82	\$8.06	\$9,948	0.14	\$1.30	120	\$0.93	120	\$2.88	120	\$3.99
38	Moose Creek	1	319	143	12	0.32	\$5.48	\$17,182	0.14	\$0.51	120	\$2.06	120	\$2.99	120	\$3.52
39	Long Lake Phase 3, Sudbury	1	100	46		0.10	\$1.80	\$18,050	0.14	\$0.16	120	\$0.52	120	\$0.87	120	\$1.07
40	Gores Landing	1	239	108	9	0.24	\$4.32	\$18,057	0.13	\$0.38	120	\$1.85	120	\$2.52	120	\$2.90
41	***Emsdale Muskoka	1	33	14		0.03	\$0.56	\$16,979	0.13	\$0.05	120	\$0.24	120	\$0.33	120	\$0.37
42	Consecon- Ameliasburgh, Rossmore	3	1,650	744	33	1.77	\$30.00	\$18,184	0.13	\$2.64	120	\$12.01	120	\$16.94	120	\$19.73

Opportunity Assessment Summary - Updated

											Including TES/ITE					
											Min PI= 0.4		Min PI= 0.5		Min PI=0.6	
Row	Community Name	Communities	Potential Customers	Forecast Customers	Distance From Source (km)	Annual Volume (million m3)	Gross Capital Cost (millions)	Gross Capital/ Potential Customer	Natural PI*	Potential Annual Savings** (millions)	TES/ITE Months	CIAC Required (millions)	TES/ITE Months	CIAC Required (millions)	TES/ITE Months	CIAC Required (millions)
43	Keast and South Bay Rd, Sudbury	1	100	46		0.10	\$1.90	\$19,044	0.13	\$0.16	120	\$0.64	120	\$0.99	120	\$1.18
44	Neustadt	1	209	94	9	0.21	\$2.52	\$12,053	0.12	\$0.33	120	\$0.76	120	\$1.25	120	\$1.52
45	Wabauskang First Nation	1	161	72		0.16	\$3.12	\$19,302	0.12	\$0.26	120	\$1.30	120	\$1.80	120	\$2.08
46	Cherry Valley	1	161	72	7	0.16	\$3.12	\$19,398	0.12	\$0.26	120	\$0.39	120	\$0.75	120	\$1.11
47	St Charles, Sudbury	1	427	192	11	0.44	\$8.54	\$19,992	0.12	\$0.68	120	\$3.99	120	\$5.22	120	\$5.92
48	Spencerville	1	317	142	13	0.32	\$6.32	\$19,935	0.12	\$0.51	120	\$3.07	120	\$3.96	120	\$4.46
49	Alderville, Roseneath (Incl Alderville FN)	2	265	119	13	0.27	\$5.95	\$22,458	0.11	\$0.42	120	\$3.38	120	\$4.07	120	\$4.47
50	Augusta Township	1	95	42	5	0.10	\$2.15	\$22,623	0.11	\$0.15	120	\$1.14	120	\$1.41	120	\$1.57
51	Nobel (Parry Sound)	1	221	100	4	0.23	\$5.99	\$27,096	0.09	\$0.35	120	\$1.23	120	\$1.91	120	\$2.60
52	Remi Lake area - north of Moonbeam	1	444	200		0.45	\$12.43	\$27,992	0.09	\$0.71	120	\$8.39	120	\$9.49	120	\$10.11
53	Chukuni Subdivision (Red Lake area)	1	97	43	0	0.10	\$2.74	\$28,229	0.09	\$0.16	120	\$1.81	120	\$2.06	120	\$2.21
54	Ripley,Lucknow	2	916	480	31	1.57	\$21.67	\$23,655	0.05	\$1.66	120	\$18.80	120	\$19.57	120	\$20.00
55	Redbridge	1	100	46	6	0.10	\$3.19	\$31,867	0.09	\$0.16	120	\$0.65	120	\$1.02	120	\$1.39
56	Sydenham, Harrowsmith, Verona	3	1,117	502	28	1.14	\$35.06	\$31,386	0.08	\$1.79	120	\$25.88	120	\$28.37	120	\$29.77
57	Gillies (outside Thunder Bay)	1	75	33		0.07	\$2.34	\$31,246	0.08	\$0.12	120	\$1.72	120	\$1.89	120	\$1.98
58	Inverary	1	200	91	8	0.25	\$7.10	\$35,511	0.07	\$0.32	120	\$5.58	120	\$5.99	120	\$6.22
59	Thomasburg	1	140	63	10	0.14	\$4.93	\$35,181	0.07	\$0.22	120	\$3.74	120	\$4.06	120	\$4.25
60	Loon Lake (outside of Thunder Bay)	1	175	79		0.18	\$6.49	\$37,112	0.07	\$0.28	120	\$5.16	120	\$5.52	120	\$5.73
61	Webbwood and McKerrow + Massey	3	524	236	35	0.53	\$20.82	\$39,724	0.07	\$0.84	120	\$5.15	120	\$7.55	120	\$9.96
62	Centenial Cres, North Bay	1	100	46	4	0.10	\$4.44	\$44,367	0.07	\$0.16	120	\$3.65	120	\$3.86	120	\$3.98
63	Thunder Lake & Meadows (Dryden area)	1	206	92		0.21	\$9.01	\$43,760	0.06	\$0.33	120	\$7.83	120	\$8.15	120	\$8.33
64	Charlton NW of Englehart	1	63	29	7	0.07	\$2.85	\$45,174	0.06	\$0.10	120	\$0.72	120	\$1.05	120	\$1.38
65	Goulais River and Goulais Bay	2	333	150	22	0.34	\$15.06	\$45,225	0.06	\$0.53	120	\$3.96	120	\$5.70	120	\$7.44
66	Westport	1	1,188	536	54	1.33	\$55.79	\$46,963	0.06	\$1.90	120	\$49.32	120	\$51.05	120	\$52.03
67	Bancroft	1	1,896	854	70	1.98	\$89.32	\$47,109	0.06	\$3.04	120	\$78.99	120	\$81.77	120	\$83.33
68	King Kirkland, Larder Lake, Virginiatown, Kearns	4	1,014	458	38	1.05	\$48.33	\$47,682	0.06	\$1.62	120	\$43.08	120	\$44.48	120	\$45.27
69	Sioux Lookout, Hudson, Lac Seul FN, Fisherman's Head	4	2,814	1,268	132	2.88	\$134.40	\$47,756	0.06	\$4.51	120	\$119.52	120	\$123.51	120	\$125.75
70	Roblin, Marbank	2	204	92	19	0.21	\$9.76	\$47,829	0.06	\$0.33	120	\$8.70	120	\$8.98	120	\$9.14
71	Red Rock First Nation - Lake Helen	1	100	46	3	0.10	\$5.10	\$50,984	0.06	\$0.16	120	\$2.02	120	\$2.61	120	\$3.20
72	Back Rd- Timmins area	1	126	57	9	0.13	\$6.78	\$53,771	0.05	\$0.20	120	\$6.13	120	\$6.30	120	\$6.40
73	Lac St-Therese (north of Hearst)	1	119	54	12	0.13	\$6.97	\$58,542	0.05	\$0.19	120	\$6.45	120	\$6.59	120	\$6.67
74	Field	1	100	46	15	0.10	\$6.02	\$60,214	0.05	\$0.16	120	\$1.67	120	\$2.36	120	\$3.06
75	Slate River (outside Thunder Bay)	1	300	136		0.31	\$18.11	\$60,380	0.05	\$0.48	120	\$17.25	120	\$17.47	120	\$17.60
76	Hagar	1	70	31	1	0.07	\$4.17	\$59,611	0.05	\$0.11	120	\$1.18	120	\$1.66	120	\$2.14
77	Rosseau (Parry Sound)	1	100	47	20	0.71	\$6.54	\$65,447	0.05	\$0.16	120	\$1.85	120	\$2.61	120	\$3.37
78	Wahnapitae First Nation	1	130	59	17	2.13	\$8.28	\$63,682	0.05	\$0.21	120	\$2.36	120	\$3.32	120	\$4.28
79	Lavigne	1	66	30	13	0.07	\$4.47	\$67,678	0.05	\$0.11	120	\$1.29	120	\$1.81	120	\$2.32
80	Town of Wabigoon, Wabigoon First Nation	2	254	114	39	0.26	\$18.09	\$71,239	0.04	\$0.41	120	\$5.44	120	\$7.54	120	\$9.64
81	O'Connor (Outside Thunder Bay)	1	275	123	6	0.28	\$21.15	\$76,916	0.04	\$0.44	120	\$6.44	120	\$8.89	120	\$11.35
82	Terrace Bay, Schrieber, Marathon	3	3,109	1,400	200	3.18	\$243.97	\$78,471	0.04	\$4.98	120	\$73.95	120	\$102.25	120	\$130.56
83	Conmee (outside Thunder Bay)	1	150	68		0.15	\$12.01	\$80,045	0.04	\$0.24	120	\$3.60	120	\$5.00	120	\$6.39
84	Algoma Mills, Spragge, Serpent River, Spanish	4	413	189	53	7.43	\$35.16	\$85,142	0.04	\$0.66	120	\$10.75	120	\$14.83	120	\$18.91

Opportunity Assessment Summary - Updated

											Including TES/ITE					
											Min PI= 0.4		Min PI= 0.5		Min PI=0.6	
Row	Community Name	Communities	Potential Customers	Forecast Customers	Distance From Source (km)	Annual Volume (million m3)	Gross Capital Cost (millions)	Gross Capital/ Potential Customer	Natural PI*	Potential Annual Savings** (millions)	TES/ITE Months	CIAC Required (millions)	TES/ITE Months	CIAC Required (millions)	TES/ITE Months	CIAC Required (millions)
85	Camden East, Yarker, Tamworth, Erinsville	4	636	289	57	0.73	\$54.68	\$85,977	0.04	\$1.02	120	\$16.78	120	\$23.13	120	\$29.48
86	Nolalu (outside Thunder Bay)	1	75	33	9	0.07	\$7.72	\$102,985	0.03	\$0.12	120	\$2.44	120	\$3.34	120	\$4.23
87	***Dorion (outside Thunder Bay)	1	30	13	2	0.03	\$3.35	\$111,600	0.03	\$0.05	120	\$1.09	120	\$1.48	120	\$1.87
88	***Marks Township (outside Thunder Bay)	1	30	13		0.03	\$3.43	\$114,188	0.03	\$0.05	120	\$1.11	120	\$1.50	120	\$1.90
89	Whitefish River	1	145	66	29	0.15	\$18.25	\$125,869	0.03	\$0.23	120	\$5.85	120	\$7.97	120	\$10.09
90	Kaministiquia	1	66	30		0.07	\$8.48	\$128,543	0.03	\$0.11	120	\$2.74	120	\$3.73	120	\$4.71
91	Bala Muskoka	1	133	60	28	0.14	\$17.10	\$128,603	0.03	\$0.21	120	\$5.50	120	\$7.49	120	\$7.49
92	Dorset	1	133	60	34	0.14	\$19.52	\$146,761	0.03	\$0.21	120	\$6.37	120	\$8.63	120	\$10.90
93	Jogues (south of Hearst)	1	77	34	14	0.08	\$12.56	\$163,170	0.03	\$0.12	120	\$4.16	120	\$5.62	120	\$7.08
94	Madsen	1	87	39	8	0.09	\$16.25	\$186,736	0.03	\$0.14	120	\$5.41	120	\$7.30	120	\$9.19
95	Arnstein, Port Loring	2	143	64	57	0.15	\$33.94	\$237,365	0.02	\$0.23	120	\$11.48	120	\$15.43	120	\$19.37
96	Nippising Village, Restoule	2	66	30	44	0.07	\$18.24	\$276,420	0.02	\$0.11	120	\$6.21	120	\$8.33	120	\$10.46
97	***Hoyle	1	25	11	1	0.02	\$7.73	\$309,086	0.02	\$0.04	120	\$0.27	120	\$3.56	120	\$4.46
98	***Hilton Beach	1	48	21	25	0.05	\$15.68	\$326,643	0.02	\$0.08	120	\$5.39	120	\$7.21	120	\$9.03
99	Aroland/Nakina	2	200	92	71	0.23	\$79.18	\$395,923	0.02	\$0.32	120	\$27.45	120	\$36.66	120	\$45.87
100	***Whitefish Falls	1	31	14	20	0.03	\$14.13	\$455,817	0.02	\$0.05	120	\$4.92	120	\$6.57	120	\$8.21
101	***Baysville Muskoka	1	33	14	24	0.03	\$14.58	\$441,956	0.02	\$0.05	120	\$5.09	120	\$6.78	120	\$8.48
102	***Mactier (Parry Sound)	1	33	14	32	0.03	\$18.87	\$571,767	0.02	\$0.05	120	\$6.62	120	\$8.81	120	\$11.00
103	McKenzie Island	1	80	36	1	0.08	\$49.05	\$613,078	0.02	\$0.13	120	\$17.17	120	\$22.87	120	\$28.58

TOTALS- All Projects		136	43,735	20,606			\$1,536.75	\$35,137		\$72.03		\$704.54		\$842.67		\$975.67
29	Qualifying Projects with no CIAC at PI= 0.4;	T	33	18,373	9,107		\$134.94			\$31.21						
20	Qualifying Projects with no CIAC at PI= 0.5;	T	21	7,861	3,871		\$48.36			\$12.59						
12	Qualifying Projects with no CIAC at PI= 0.6;	T	13	5,796	2,928		\$32.60			\$9.29						

* Project profitability index based on customer forecast and distribution revenue, excluding TES and ITE contributions proposed in this filing.
** Simplified calculation assuming residential NAC for all customers and no contract customer volumes
*** Project does not meet definition of Community Expansion Project so would not be eligible for reduced PI without additional project scope.

Opportunity Assessment Assumptions

In completing the Opportunity Assessment, Union generally applied a series of high level assumptions related to key economic modelling inputs. The approach is outlined in further detail below:

- Costs:
 - Mains: Where feasibility cost estimates for projects had been completed in the recent past, inflation was applied to these estimates and they were used where appropriate. Where previous estimates were not available or no longer appropriate, Union estimated costs using local average costs per metre for main of differing sizes. Distances were determined by scaling off existing public mapping.
 - Services and measurement equipment: Local recent average cost per installation was used.
 - Other: Local judgment was used to define station, land and other costs. In cases where known system reinforcement would be required at the point of connection to the existing system, high level estimates were used for those costs.
- Customer Forecast
 - General Service customer forecast: Where more detailed information was not available, Union set the customer forecast at 45% of maximum potential customers who would have main installed adjacent to their site. This assumption was based on market surveys from recent and potential projects, adjusted downward based on an assumed need for some form of financial contribution from the customers. The forecast was then allocated across residential and commercial/industrial segments based on most recent revenue forecast data (90% residential). Attachment rate was based on the average rate of attachments each year to 4 large community expansion projects from the 1995-2001 era.
 - Contract customers: Defined based on local knowledge
- Volumes: Based on normalized annual consumption (“NAC”) for existing general service residential customers, local knowledge or NAC for commercial/industrial general service customers, and local knowledge for contract customers
- Discount Rate: 5.1% based on 2015 after tax weighted average cost of capital

- Revenue Horizon: 40 years for residential and 20 years for commercial/industrial general service customers.
- All other assumptions were based on current practice in compliance with E.B.O. 188 guidelines.

Calculation of the proposed \$0.23/m³ TES

(a) Payback Period (Years)	(b) Annual Consumption (m ³)	(c) Annual Energy Savings	(d)=(a)x(c) Total Energy Savings	(e) One Time Conversion Cost	(f)=(d)-(e) Net Savings	(h)=(e)/(a) Net Savings /Year	(i)=(h)/(b) *Net Savings /m3
3.75	2,200	\$1,600.00	\$6,000.00	\$4,068.00	\$1,932.00	\$515.20	\$0.234

* Net Savings per m³ equates to the minimum equivalent TES price to enable simple payback within the desired payback period

UNION GAS LIMITED
Revenue Requirement of the Milverton Community Expansion Project

Line No.	Particulars (\$000's)	2016 (a)	2017 (b)	2018 (c)
	<u>Rate Base Investment</u>			
1	Capital Expenditures	4,259	179	80
2	Average Investment	1,391	4,203	4,231
	<u>Revenue Requirement Calculation:</u>			
	<u>Operating Expenses:</u>			
3	Operating and Maintenance Expenses (1)	1	7	14
4	Depreciation Expense (2)	57	117	120
5	Property Taxes	16	49	49
6	Total Operating Expenses	<u>75</u>	<u>173</u>	<u>183</u>
7	Required Return (5.77% x line 2) (3)	80	243	244
	<u>Income Taxes:</u>			
8	Income Taxes - Equity Return (4)	16	49	49
9	Income Taxes - Utility Timing Differences (5)	<u>(25)</u>	<u>(49)</u>	<u>(45)</u>
10	Total Income Taxes	<u>(9)</u>	<u>(0)</u>	<u>4</u>
11	Total Revenue Requirement (line 6 + line 7 + line 10)	<u>146</u>	<u>416</u>	<u>431</u>
12	Incremental Revenue (6)	10	46	84
13	Net Revenue Requirement (line 11 - line 12)	<u>136</u>	<u>370</u>	<u>347</u>

Notes:

- (1) Operating and Maintenance expenses include distribution expenses associated with attaching a new customer.
- (2) Depreciation expense at 2013 Board-approved depreciation rates.
- (3) The required return of 5.77% assumes a capital structure of 64% long-term debt at 4.0% and 36% common equity at the 2013 Board-approved return of 8.93% ($0.64 \times 0.04 + 0.36 \times 0.0893$).

The 2018 required return calculation is as follows:

\$4.231 million \times 64% \times 4.0% = \$0.108 million plus

\$4.231 million \times 36% \times 8.93% = \$0.136 million for a total of \$0.244 million.

- (4) Taxes related to the equity component of the return at a tax rate of 26.5%.
- (5) Taxes related to utility timing differences are negative as the capital cost allowance deduction in arriving at taxable income exceeds the provision of book depreciation in the year.
- (6) Incremental revenue associated with forecast customer attachments based on an average Union North and Union South residential and commercial customer.

UNION GAS LIMITED
Revenue Requirement of the Prince Township Community Expansion Project

Line No.	Particulars (\$000's)	2016 (a)	2017 (b)	2018 (c)
	<u>Rate Base Investment</u>			
1	Capital Expenditures	2,278	150	52
2	Average Investment	744	2,266	2,319
	<u>Revenue Requirement Calculation:</u>			
	<u>Operating Expenses:</u>			
3	Operating and Maintenance Expenses (1)	1	4	8
4	Depreciation Expense (2)	31	63	66
5	Property Taxes	8	25	25
6	Total Operating Expenses	<u>40</u>	<u>92</u>	<u>99</u>
7	Required Return (5.77% x line 2) (3)	43	131	134
	<u>Income Taxes:</u>			
8	Income Taxes - Equity Return (4)	9	26	27
9	Income Taxes - Utility Timing Differences (5)	<u>(14)</u>	<u>(27)</u>	<u>(25)</u>
10	Total Income Taxes	<u>(5)</u>	<u>(0)</u>	<u>2</u>
11	Total Revenue Requirement (line 6 + line 7 + line 10)	<u>78</u>	<u>223</u>	<u>235</u>
12	Incremental Revenue (6)	5	26	53
13	Net Revenue Requirement (line 11 - line 12)	<u>72</u>	<u>196</u>	<u>182</u>

Notes:

- (1) Operating and Maintenance expenses include distribution expenses associated with attaching a new customer.
- (2) Depreciation expense at 2013 Board-approved depreciation rates.
- (3) The required return of 5.77% assumes a capital structure of 64% long-term debt at 4.0% and 36% common equity at the 2013 Board-approved return of 8.93% ($0.64 \times 0.04 + 0.36 \times 0.0893$).

The 2018 required return calculation is as follows:

\$2.319 million \times 64% \times 4.0% = \$0.059 million plus

\$2.319 million \times 36% \times 8.93% = \$0.075 million for a total of \$0.134 million.

- (4) Taxes related to the equity component of the return at a tax rate of 26.5%.
- (5) Taxes related to utility timing differences are negative as the capital cost allowance deduction in arriving at taxable income exceeds the provision of book depreciation in the year.
- (6) Incremental revenue associated with forecast customer attachments based on an average Union North and Union South residential and commercial customer.

UNION GAS LIMITED
Revenue Requirement of the Chippewa's of Kettle and Stony Point First Nation and Lambton Shores
Community Expansion Project

Line No.	Particulars (\$000's)	2016 (a)	2017 (b)	2018 (c)
	<u>Rate Base Investment</u>			
1	Capital Expenditures	2,169	84	32
2	Average Investment	708	2,138	2,144
	<u>Revenue Requirement Calculation:</u>			
	<u>Operating Expenses:</u>			
3	Operating and Maintenance Expenses (1)	1	4	8
4	Depreciation Expense (2)	29	59	61
5	Property Taxes	8	24	24
6	Total Operating Expenses	<u>38</u>	<u>88</u>	<u>93</u>
7	Required Return (5.77% x line 2) (3)	41	123	124
	<u>Income Taxes:</u>			
8	Income Taxes - Equity Return (4)	8	25	25
9	Income Taxes - Utility Timing Differences (5)	<u>(13)</u>	<u>(25)</u>	<u>(23)</u>
10	Total Income Taxes	<u>(5)</u>	<u>(0)</u>	<u>2</u>
11	Total Revenue Requirement (line 6 + line 7 + line 10)	<u>74</u>	<u>211</u>	<u>219</u>
12	Incremental Revenue (6)	6	26	48
13	Net Revenue Requirement (line 11 - line 12)	<u>69</u>	<u>185</u>	<u>171</u>

Notes:

- (1) Operating and Maintenance expenses include distribution expenses associated with attaching a new customer.
- (2) Depreciation expense at 2013 Board-approved depreciation rates.
- (3) The required return of 5.77% assumes a capital structure of 64% long-term debt at 4.0% and 36% common equity at the 2013 Board-approved return of 8.93% ($0.64 \times 0.04 + 0.36 \times 0.0893$).

The 2018 required return calculation is as follows:

\$2.144 million x 64% x 4.0% = \$0.055 million plus

\$2.144 million x 36% x 8.93% = \$0.069 million for a total of \$0.124 million.

- (4) Taxes related to the equity component of the return at a tax rate of 26.5%.
- (5) Taxes related to utility timing differences are negative as the capital cost allowance deduction in arriving at taxable income exceeds the provision of book depreciation in the year.
- (6) Incremental revenue associated with forecast customer attachments based on an average Union North and Union South residential and commercial customer.

UNION GAS LIMITED
Revenue Requirement of the Delaware Nation of Moraviantown Community Expansion Project

Line No.	Particulars (\$000's)	2016 (a)	2017 (b)	2018 (c)
	<u>Rate Base Investment</u>			
1	Capital Expenditures	539	4	2
2	Average Investment	176	526	515
	<u>Revenue Requirement Calculation:</u>			
	<u>Operating Expenses:</u>			
3	Operating and Maintenance Expenses (1)	0	2	3
4	Depreciation Expense (2)	7	15	15
5	Property Taxes	2	5	5
6	Total Operating Expenses	10	22	23
7	Required Return (5.77% x line 2) (3)	10	30	30
	<u>Income Taxes:</u>			
8	Income Taxes - Equity Return (4)	2	6	6
9	Income Taxes - Utility Timing Differences (5)	(3)	(6)	(5)
10	Total Income Taxes	(1)	(0)	0
11	Total Revenue Requirement (line 6 + line 7 + line 10)	19	52	53
12	Incremental Revenue (6)	3	11	18
13	Net Revenue Requirement (line 11 - line 12)	16	41	36

Notes:

- (1) Operating and Maintenance expenses include distribution expenses associated with attaching a new customer.
- (2) Depreciation expense at 2013 Board-approved depreciation rates.
- (3) The required return of 5.77% assumes a capital structure of 64% long-term debt at 4.0% and 36% common equity at the 2013 Board-approved return of 8.93% ($0.64 \times 0.04 + 0.36 \times 0.0893$).

The 2018 required return calculation is as follows:

\$0.515 million \times 64% \times 4.0% = \$0.013 million plus

\$0.515 million \times 36% \times 8.93% = \$0.017 million for a total of \$0.030 million.

- (4) Taxes related to the equity component of the return at a tax rate of 26.5%.
- (5) Taxes related to utility timing differences are negative as the capital cost allowance deduction in arriving at taxable income exceeds the provision of book depreciation in the year.
- (6) Incremental revenue associated with forecast customer attachments based on an average Union North and Union South residential and commercial customer.

DRAFT

UNION GAS LIMITED
Accounting Entries for
Community Expansion Project Costs
Deferral Account No. 179-XXX

Account numbers are from the Uniform System of Accounts for Gas Utilities, Class A prescribed under the Ontario Energy Board Act.

Debit - Account No.179-XXX
 Other Deferred Charges – Community Expansion Project Costs

Credit - Account No. 579
 Miscellaneous Operating Revenue

To record, as a debit (credit) in Deferral Account No. 179-XXX, the difference between the actual net revenue requirement related to the Community Expansion Projects and the net revenue requirement included in rates as approved by the Board.

Debit - Account No.179-XXX
 Other Deferred Charges – Community Expansion Project Costs

Credit - Account No. 323
 Other Interest Expense

To record, as a debit (credit) in Deferral Account No. 179-XXX, interest on the balance in Deferral Account No. 179-XXX. Simple interest will be computed monthly on the opening balance in the said account in accordance with the methodology approved by the Board in EB-2006-0117.

DRAFT

UNION GAS LIMITED

**Accounting Entries for
Community Expansion Contribution Deferral Account
Deferral Account No. 179-XXX**

Account numbers are from the Uniform System of Accounts for Gas Utilities, Class A prescribed under the Ontario Energy Board Act.

Debit - Account No. 579
 Miscellaneous Operating Revenue

Credit - Account No. 179-XXX
 Other Deferred Charges – Community Expansion Contribution Deferral Account

To record, as a debit (credit) in Deferral Account No. 179-XXX, the actual Incremental Tax Equivalent (ITE) and Temporary Expansion Surcharge (TES) contributions related to the Community Expansion Project.

Debit - Account No. 323
 Other Interest Expense

Credit - Account No. 179-XXX
 Other Deferred Charges – Community Expansion Contribution Deferral Account

To record, as a debit (credit) in Deferral Account No. 179-XXX, interest on the balance in Deferral Account No. 179-XXX. Simple interest will be computed monthly on the opening balance in the said account in accordance with the methodology approved by the Board in EB-2006-0117.

Union's Revised Distribution New Business Guidelines

DISTRIBUTION NEW BUSINESS GUIDELINES

Purpose

- To ensure that customers are treated fairly and consistently.
- To manage growth of the natural gas distribution business by providing guidelines for capital investment to ensure no undue rate impact for existing customers.
- To provide business principles and guidelines for distribution new business investments.
- To streamline administrative processes and approvals where possible.
- To delegate authority where appropriate to field operations staff.

Definitions

Aid to Construction ("Aid"): A financial contribution to the capital costs of a natural gas system extension, also called Aid

Community Expansion Project: A natural gas system expansion project which will provide first time natural gas system access where a minimum of 50 potential customers in homes and businesses already exist, for which minimum economic feasibility guidelines permit a Profitability Index ("PI") of less than 1.0.

Distribution New Business: Providing gas service to new customers in all market segments (i.e. new and existing housing, commercial and industrial). It also includes providing incremental gas supply capacity to existing customers.

Rolling Project Portfolio: An accumulation of the new business capital requisitions that are issued and approved for a 12 month period. The rolling Profitability Index ("PI") is the cumulative PI data from the Rolling Project portfolio. The rolling project portfolio includes all future customer attachments, revenues and costs on the basis of the life cycle

1 of each project. It also includes a forecast of normalized reinforcement costs. It excludes
2 those customers requiring only a service lateral from an existing main

3 **Investment Portfolio:** The costs and revenues associated with all new distribution
4 customers who are forecast to attach in a particular test year (including new customers
5 attaching on existing mains). The Investment Portfolio includes a forecast of normalized
6 reinforcement costs.

7 **Service Lateral:** A gas pipeline connecting the company gas main to the customer's gas
8 meter as measured from property line to meter.

9 **Temporary Connection Surcharge (TCS):** An economic contribution to financial
10 feasibility of main extension projects made by customers who attach to the project
11 through a temporary volumetric rate.

12 **Temporary Expansion Surcharge (TES):** An economic contribution to financial
13 feasibility of community expansion projects by all the customers who attach to the
14 system during the period in which it is in place through a temporary volumetric rate.

15 **Minimum Size:** The minimum pipeline design size required to supply gas to the affected
16 customers without consideration of potential customer demand downstream from these
17 customers.

18 **Profitability Index ("PI"):** A ratio of the net present value of cash inflows over the net
19 present value of cash outflows resulting from a discounted cash flow analysis of a
20 distribution new business project, or an accumulation of projects in the case of a
21 portfolio.

22 23 **Accountability**

24 Union manages separate Investment Portfolios and Rolling Project Portfolios for Union North
25 (Rate 01 and 10) and Union South (Rate M1 and M2) areas. Excluding Community Expansion

Projects, the Rolling Project Portfolio PI for each area must remain above 1.0 and the Net Present Value (“NPV”) must remain greater than \$0 at all times.

The Director, Distribution Marketing is accountable for ensuring that the corporate Rolling Project Portfolio PI, excluding Community Expansion Projects, exceeds 1.0 on an ongoing basis.

Each district is accountable for ensuring that they maintain a district Rolling Project PI at or greater than a specified threshold. As a general rule the threshold is a PI of 1.0. However, at the discretion of the company, a district threshold may be set higher or lower for specified periods to balance the needs of customers and maintain the rolling PI for each operations area in excess of 1.0.

Project Acceptance Levels

A PI of 1.0 from a stage one economic feasibility analysis (discounted cash flow) is required in situations where there is no further growth anticipated in the surrounding area and /or a dedicated line is required (i.e. a large industrial customer or a customer requiring only a service).

Where the cost of proposed projects exceeds the capital available in a particular year or would result in failure to meet minimum portfolio performance (PI) targets, Union will proceed with the most profitable projects.

For single residential services being attached on existing main, an economic feasibility analysis is not required.

Acceptance Level Exceptions:

Subject to ability to manage minimum portfolio PI’s as indicated above, projects can proceed with reduced PI levels. All requests for exceptions to the minimum project PI of 1.0 must be

1 authorized by the Director, Distribution Marketing, and the Director, Distribution Operations
2 prior to construction. Generally the following types of exceptions will be considered:

- 3 a) For Community Expansions projects that will provide first time natural gas access
4 to a minimum of 50 potential customers in pre-existing homes and businesses, the
5 minimum qualifying project PI shall be 0.4 including any customer and municipal
6 contributions, provided that:
 - 7 i. Customer contributions include a minimum 4 year commitment to a
8 Temporary Expansion Surcharge ("TES"), and
 - 9 ii. The municipality has agreed to make a contribution equivalent to the value
10 of any incremental property taxes that would be generated from the project
11 for a period of time that matches the term of the TES referenced above at
12 minimum.
- 13 b) For Community Expansions projects that will provide first time natural gas
14 system access to a minimum of 50 potential customers in pre-existing homes and
15 businesses, a minimum qualifying project PI of 0.8 can be considered where
16 conditions specified in section a above are not in place
- 17 c) For any other projects, if an alternative system design reduces investment required
18 for the project, a reduced PI can be accepted. By example, a short main extension
19 may be less costly for the Company than a high pressure road crossing service.

21 **Collecting a Contribution**

22 Projects that do not meet the minimum stage 1 economic criteria shall require that a contribution
23 be collected from the customer(s).

24
25 The Company uses an Aid to Construction method to collect these contributions. This can be
26 defined as a charge collected in advance of construction from new customers or other parties
27 who have agreed to fund the shortfall in the economics.

- 1 a) The amount of Aid to Construction charged to the customer(s) will be based on
2 the minimum size facilities to service that customer(s).
3 b) The customer(s) will have the option of paying the Aid to Construction up front as
4 a lump sum or have the amount financed at the company's finance rate.

5
6 For Community Expansion Projects, contributions will be collected from all customers serviced
7 by the project through use of a Temporary Expansion Surcharge (TES), and municipal
8 contributions can be collected by way of annual payments for the same term as the TES.

9
10 For other projects involving main extensions or commercial/industrial general service customer
11 attachments requiring Aid to Construction in excess of \$1,000 per customer, customers can elect
12 to make a contribution by use of a Temporary Connection Surcharge (TCS)

13
14 **Project Costs**

- 15 a) When available, economic feasibility analysis shall use project specific data
16 (costs, volumes, customer attachments) based on survey data, historical practice,
17 weather and local conditions to determine the costs, load and forecast.
18 b) When no specific data is available or the project is a minor project, district
19 averages shall be used.

20 **Service Laterals**

- 21 a) The company shall provide at its cost up to 30 metres of service line to connect
22 a residential customer.
23 b) Services over the length specified above shall require the prior agreement of the
24 customer to pay an "excess charge" of \$45.00 per metre. This charge reflects a
25 company-wide average of summer versus winter pricing, open versus built up

1 conditions and company versus contractor crew pricing. In all cases the
2 customer/builder shall be advised in advance of this charge.

3 c) The PI analysis for commercial and industrial services shall be individually
4 calculated reflecting the site specific lateral length, pipeline sizing, costs, gas
5 usage and margins. Commercial and Industrial customers shall be required to
6 contribute Aid to Construction or the TCS if necessary to achieve a minimum
7 PI of 1.0, unless part of a Community Expansion Project. For services in
8 Community Expansion projects, the minimum PI for commercial and industrial
9 attachments will match that approved for the project until such time as the TES
10 has been in place for 24 months.

11 d) The service lateral is measured from property line to meter.

12 e) The minimum requirement to qualify for residential service shall be attachment
13 of a water heater or a primary heat source. Requests for service where this
14 condition is not satisfied shall be considered but will require a discounted cash
15 flow analysis to be completed and any required customer contribution to be
16 made in advance.

17

Union's Current Distribution New Business Guidelines

DISTRIBUTION NEW BUSINESS GUIDELINES¹

Purpose

- To ensure that customers are treated fairly and consistently.
- To manage growth of the natural gas distribution business by providing guidelines for capital investment to ensure no undue rate impact for existing customers.
- To provide business principles and guidelines for distribution new business investments.
- To streamline administrative processes and approvals where possible.
- To delegate authority where appropriate to field operations staff.

Definitions

Distribution New Business - is defined as providing gas service to new customers in all market segments (i.e. new and existing housing, commercial and industrial) who do not currently have access to natural gas. It also includes providing incremental gas supply capacity to existing customers.

Distribution Project Portfolio: An accumulation of all the new business capital requisitions that are issued and approved in the current month. It includes all future customer attachments, revenues and costs on the basis of the life cycle of each project. It excludes those customers requiring only a service lateral from an existing main.

Rolling Project Portfolio: An accumulation of the new business capital requisitions from the past 12-months Distribution Project Portfolio. The rolling Profitability Index (PI) is the cumulative PI data from the Rolling Project portfolio.

Investment Portfolio: The costs and revenues associated with all new distribution customers who are forecast to attach in a particular test year (including new customers

¹ As filed in EB-2011-0210, Exhibit B1, Tab 3, Union Gas 2013 Cost of Service Application

1 attaching on existing mains). The Investment Portfolio includes a forecast of normalized
2 reinforcement costs.

3 **Major Projects:** All new business projects with capital costs greater than \$500,000.

4 **Service Lateral:** A gas pipeline connecting the company gas main to the customer's gas
5 meter as measured from property line to meter.

6 **Minimum Size:** The minimum pipeline design size required to supply gas to the affected
7 customers without consideration of potential customer demand downstream from this
8 customer.

9 **Accountability**

10 The Company manages separate corporate distribution portfolios for the Northern Operations
11 area and the Southern Operations area. The rolling portfolio PI for each area must remain above
12 1.0 and the Net Present Value (NPV) must remain greater than 0 at all times.

13 The Director, Distribution Marketing is accountable for ensuring that the corporate rolling PI
14 exceeds 1.0 on an ongoing basis.

15 Each district is accountable for ensuring that they maintain a district rolling PI at or greater than
16 a specified threshold. As a general rule the threshold is a PI of 1.0. However, at the discretion of
17 the company, a district threshold may be set higher or lower for specified periods to balance the
18 needs of customers and maintain the rolling PI for each operations area in excess of 1.0.

19 **Project Acceptance Levels**

20 The minimum qualifying project PI shall be 0.8 including any customer contributions. The
21 company will manage the Investment Portfolio ensuring that the portfolio PI remains above 1.0
22 and the rate impact is acceptable.

23 Requests for exceptions to the minimum PI must be authorized by the Director, Distribution
24 Marketing, and the Director, Distribution Operations.

A PI of 1.0 is required in situations where there is no further growth anticipated in the surrounding area and /or a dedicated line is required (i.e. a large industrial customer or a customer requiring only a service). Where the cost of proposed projects exceeds the capital available in a particular year, Union will proceed with the most profitable projects.

Collecting a Contribution

Projects that do not meet the minimum stage 1 economic criteria shall require that a contribution be collected from the customer(s).

The Company uses an Aid to Construct method to collect these contributions. This can be defined as a charge collected in advance of construction from new customers who have agreed to fund the shortfall in the economics.

- a) The amount of aid to construct charged to the customer(s) will be based on the minimum size facilities to service that customer(s).
- b) The customer(s) will have the option of paying the aid to construct upfront as a lump sum or have the amount financed at the company's finance rate.

Project Costs

- a) When available, economic feasibility analysis shall use project specific data (costs, volumes, and customer attachments) based on survey data, historical practice, weather and local conditions to determine the costs, load and forecast.
- b) When no specific data is available or the project is a minor project, district averages shall be used.

Service Laterals

- a) The company shall provide at its cost up to 30 metres of service line to connect a residential customer.
- b) Services over the length specified above shall require the prior agreement of the customer to pay an "excess charge" of \$45.00 per metre. This charge reflects a

1 company-wide average of summer versus winter pricing, open versus built up
2 conditions and company versus contractor crew pricing. In all cases the
3 customer/builder shall be advised in advance of this charge.

4 c) The PI analysis for non-residential services shall be individually calculated
5 reflecting the site specific lateral length, pipeline sizing, costs, gas usage and
6 margins. Non-residential customers shall be required to contribute Aid to
7 Construct if necessary to achieve a minimum PI of 1.0.

8 d) The service lateral is measured from property line to meter.

9 e) The minimum requirement to qualify for residential service shall be attachment of
10 a water heater or a primary heat source. Requests for service without meeting this
11 condition shall be considered but will require a discounted cash flow analysis with
12 estimated costs to be completed and any required customer contribution to be
13 made in advance.

14

UNION GAS LIMITED
Revenue Requirement of the 29 Potential Community Expansion Projects

Line No.	Particulars (\$000's)	2016 (a)	2017 (b)	2018 (c)
	<u>Rate Base Investment</u>			
1	Capital Expenditures	118,743	5,561	2,118
2	Average Investment	38,786	117,376	118,479
	<u>Revenue Requirement Calculation:</u>			
	<u>Operating Expenses:</u>			
3	Operating and Maintenance Expenses (1)	25	121	248
4	Depreciation Expense (2)	1,599	3,267	3,364
5	Property Taxes	280	840	840
6	Total Operating Expenses	<u>1,903</u>	<u>4,229</u>	<u>4,452</u>
7	Required Return (5.77% x line 2) (3)	2,240	6,778	6,842
	<u>Income Taxes:</u>			
8	Income Taxes - Equity Return (4)	449	1,358	1,371
9	Income Taxes - Utility Timing Differences (5)	<u>(711)</u>	<u>(1,371)</u>	<u>(1,266)</u>
10	Total Income Taxes	<u>(263)</u>	<u>(12)</u>	<u>105</u>
11	Total Revenue Requirement (line 6 + line 7 + line 10)	<u>3,881</u>	<u>10,995</u>	<u>11,399</u>
12	Incremental Revenue (6)	171	824	1,644
13	Net Revenue Requirement (line 11 - line 12)	<u>3,710</u>	<u>10,171</u>	<u>9,755</u>

Notes:

- (1) Operating and Maintenance expenses include distribution expenses associated with attaching a new customer.
- (2) Depreciation expense at 2013 Board-approved depreciation rates.
- (3) The required return of 5.77% assumes a capital structure of 64% long-term debt at 4.0% and 36% common equity at the 2013 Board-approved return of 8.93% ($0.64 \times 0.04 + 0.36 \times 0.0893$).

The 2018 required return calculation is as follows:

\$118.479 million x 64% x 4.0% = \$3.033 million plus

\$118.479 million x 36% x 8.93% = \$3.809 million for a total of \$6.842 million.

- (4) Taxes related to the equity component of the return at a tax rate of 26.5%.
- (5) Taxes related to utility timing differences are negative as the capital cost allowance deduction in arriving at taxable income exceeds the provision of book depreciation in the year.
- (6) Incremental revenue associated with forecast customer attachments based on an average Union North and Union South residential and commercial customer.

UNION GAS LIMITED
2018 Cost Allocation of the 29 Potential Community Expansion Projects

Line No.	Particulars (\$000's)	2018 Project Costs (1) (a)	TES (2) (b)	ITE (3) (c)	Total (d) = (a + b + c)
1	Rate M1	6,373	(1,765)	(288)	4,320
2	Rate M2	1,158	(321)	(50)	788
3	Rate M4	317	(88)	(14)	215
4	Rate M5	443	(123)	(12)	309
5	Rate M7	79	(22)	(4)	53
6	Rate M9	0	(0)	(1)	(0)
7	Rate M10	0	(0)	(0)	0
8	Rate T1	218	(60)	(11)	147
9	Rate T2	305	(84)	(44)	177
10	Rate T3	(1)	0	(5)	(5)
11	Subtotal - Union South	<u>8,893</u>	<u>(2,463)</u>	<u>(427)</u>	<u>6,002</u>
12	Excess Utility Space	(8)	2	(2)	(7)
13	Rate C1	(3)	1	(2)	(4)
14	Rate M12	(201)	56	(160)	(306)
15	Rate M13	(0)	0	(0)	(0)
16	Rate M16	(0)	0	(0)	(1)
17	Subtotal - Ex-franchise	<u>(212)</u>	<u>59</u>	<u>(164)</u>	<u>(318)</u>
18	Rate 01	1,427	(395)	(121)	911
19	Rate 10	463	(128)	(19)	316
20	Rate 20	338	(94)	(14)	231
21	Rate 100	396	(110)	(12)	275
22	Rate 25	94	(26)	(4)	64
23	Subtotal - Union North	<u>2,719</u>	<u>(753)</u>	<u>(170)</u>	<u>1,796</u>
24	In-franchise	11,611	(3,216)	(597)	7,798
25	Ex-franchise	(212)	59	(164)	(318)
26	Total	<u><u>11,399</u></u>	<u><u>(3,157)</u></u>	<u><u>(762)</u></u>	<u><u>7,480</u></u>

Notes:

- (1) 2018 project costs associated with 29 potential community expansion projects, as per Exhibit A, Tab 1, Appendix J, Updated, column (c).
- (2) TES credit allocated to rate classes in proportion to column (a)
- (3) ITE contributions allocated to rate classes in proportion to 2013 Board-approved property taxes, as per EB-2011-0210, Updated, Exhibit G3, Tab 2, Schedule 2.

UNION GAS LIMITED
2018 General Service Bill Impacts
Rate Impacts of the 29 Potential Community Expansion Projects
Annual Consumption of 2,200 m³

Line No.	Rate M1 - Particulars	EB-2015-0187 Approved 01-Jul-15 Total Bill (1)	EB-2015-0179 Proposed 01-Jan-18 Total Bill	Bill Impact	
		(\$) (a)	(\$) (b)	(\$) (c) = (b - a)	(%) (d) = (c / a)
	<u>Delivery Charges</u>				
1	Monthly Charge	252.00	252.00	-	
2	Delivery Commodity Charge	81.32	86.15	4.83	
3	Delivery Price Adjustment	-	-	-	
4	Storage Services	16.32	16.28	(0.03)	
5	Total Delivery Charge	349.64	354.43	4.80	1.4%
	<u>Supply Charges</u>				
6	Transportation to Union	83.37	83.37	-	
7	Commodity & Fuel	274.03	274.03	-	
8	Total Gas Supply Charge	357.40	357.40	-	
9	Total Bill (line 5 + line 8)	707.04	711.84	4.80	0.7%
10	Impacts for Customer Notices - Sales (line 9)			4.80	
11	Impacts for Customer Notices - Direct Purchase (line 5)			4.80	
Line No.	Rate 01 Eastern Zone - Particulars	EB-2015-0187 Approved 01-Jul-15 Total Bill (1)	EB-2015-0179 Proposed 01-Jan-18 Total Bill	Bill Impact	
		(\$) (a)	(\$) (b)	(\$) (c) = (b - a)	(%) (d) = (c / a)
	<u>Delivery Charges</u>				
12	Monthly Charge	252.00	252.00	-	
13	Delivery Commodity Charge	195.28	197.27	1.99	
14	Delivery Price Adjustment	-	-	-	
15	Total Delivery Charge	447.28	449.27	1.99	0.4%
	<u>Supply Charges</u>				
16	Transportation to Union	172.43	172.44	0.01	
17	Storage Services	95.59	95.52	(0.07)	
18	Subtotal	268.02	267.96	(0.06)	0.0%
19	Commodity & Fuel	274.26	274.26	-	
20	Total Gas Supply Charge (line 18 + line 19)	542.28	542.22	(0.06)	
21	Total Bill (line 15 + line 20)	989.55	991.49	1.93	0.2%
22	Impacts for Customer Notices - Sales (line 21)			1.93	
23	Impacts for Customer Notices - Direct Purchase (line 15 + line 18)			1.93	

Notes:

(1) Calculated as per Appendix A, EB-2015-0187.

UNION GAS LIMITED
2018 General Service Bill Impacts
Rate Impacts of the 29 Potential Community Expansion Projects Including TES and ITE Deferral Credits
Annual Consumption of 2,200 m³

Line No.	Rate M1 - Particulars	EB-2015-0187 Approved 01-Jul-15 Total Bill (1)	EB-2015-0179 Proposed 01-Jan-18 Total Bill	Bill Impact	
		(\$) (a)	(\$) (b)	(\$) (c) = (b - a)	(%) (d) = (c / a)
	<u>Delivery Charges</u>				
1	Monthly Charge	252.00	252.00	-	
2	Delivery Commodity Charge	81.32	86.15	4.83	
3	Delivery Price Adjustment	-	(1.54)	(1.54)	
4	Storage Services	16.32	16.28	(0.03)	
5	Total Delivery Charge	349.64	352.89	3.26	0.9%
	<u>Supply Charges</u>				
6	Transportation to Union	83.37	83.37	-	
7	Commodity & Fuel	274.03	274.03	-	
8	Total Gas Supply Charge	357.40	357.40	-	
9	Total Bill (line 5 + line 8)	707.04	710.29	3.26	0.5%
10	Impacts for Customer Notices - Sales (line 9)			3.26	
11	Impacts for Customer Notices - Direct Purchase (line 5)			3.26	

Line No.	Rate 01 Eastern Zone - Particulars	EB-2015-0187 Approved 01-Jul-15 Total Bill (1)	EB-2015-0179 Proposed 01-Jan-18 Total Bill	Bill Impact	
		(\$) (a)	(\$) (b)	(\$) (c) = (b - a)	(%) (d) = (c / a)
	<u>Delivery Charges</u>				
12	Monthly Charge	252.00	252.00	-	
13	Delivery Commodity Charge	195.28	197.27	1.99	
14	Delivery Price Adjustment	-	(1.22)	(1.22)	
15	Total Delivery Charge	447.28	448.05	0.77	0.2%
	<u>Supply Charges</u>				
16	Transportation to Union	172.43	172.44	0.01	
17	Storage Services	95.59	95.52	(0.07)	
18	Subtotal	268.02	267.96	(0.06)	0.0%
19	Commodity & Fuel	274.26	274.26	-	
20	Total Gas Supply Charge (line 18 + line 19)	542.28	542.22	(0.06)	
21	Total Bill (line 15 + line 20)	989.55	990.27	0.71	0.1%
22	Impacts for Customer Notices - Sales (line 21)			0.71	
23	Impacts for Customer Notices - Direct Purchase (line 15 + line 18)			0.71	

Notes:

(1) Calculated as per Appendix A, EB-2015-0187.

The Premier
of Ontario

Legislative Building
Queen's Park
Toronto, Ontario
M7A 1A1

La première ministre
de l'Ontario

Édifice de l'Assemblée législative
Queen's Park
Toronto (Ontario)
M7A 1A1



September 25, 2014

The Honourable Bob Chiarelli
Minister of Energy
900 Bay Street
Fourth Floor, Hearst Block
Toronto, Ontario
M7A 2E1

Dear Minister Chiarelli:

I am honoured to welcome you back to your role as Minister of Energy. We have a strong Cabinet in place, and I am confident that together we will build Ontario up, create new opportunities and champion a secure future for people across our province. The people of Ontario have entrusted their government to be a force for good, and we will reward that trust by working every day in the best interests of every person in this province.

As we implement a balanced and comprehensive plan for Ontario, we will lead from the activist centre. We will place emphasis on partnerships with businesses, communities and people to help foster continued economic growth and make a positive impact on the lives of every Ontarian. This collaborative approach will shape all the work we do. It will ensure we engage people on the issues that matter the most to them, and that we implement meaningful solutions to our shared challenges.

Our government's most recent Speech from the Throne outlined a number of key priorities that will guide your work as minister. Growing the economy and helping to create good jobs are fundamental to building more opportunity and security, now and in the future. That critical priority is supported by strategic investments in the talent and skills of our people, from childhood to retirement. It is supported through the building of modern infrastructure, transit and a seamless transportation network. It is supported by a dynamic business climate that thrives on innovation, creativity and partnerships to foster greater prosperity. And it is reflected across all of our government, in every area, and will extensively inform our programs and policies.

As we move forward with our plan to grow the economy and create jobs, we will do so through the lens of fiscal prudence. Our 2014 Budget reinforces our commitment to balancing the budget by 2017-18; it is essential that every area adheres to the program-spending objectives established in it. We will choose to invest wisely in initiatives that strengthen Ontario's competitive advantage, create jobs and provide vital public services to our families. The President of the Treasury Board, collaborating with the Minister of Finance, will work closely with you and your fellow Cabinet members to ensure that our government meets its fiscal targets. The President of the Treasury Board will also lead the government's efforts on accountability, openness and modernization as we implement new accountability measures across government.

- 2 -

As Minister of Energy, you will lead efforts to deliver on what continues to be our government's top energy priority — providing Ontarians with a clean, reliable and affordable supply of electricity.

This includes bringing on new, clean generation and ensuring investment in the transmission system to maintain grid reliability and serve new demand. It remains vitally important to manage the electricity supply mix prudently. Through integrated regional planning, you will identify solutions to meet regional needs, based on consultations that consider unique local requirements, circumstances and community priorities.

Your ministry's specific priorities include:

Implementing the Long-Term Energy Plan

- Continuing to implement the 2013 Long-Term Energy Plan (LTEP) which lays out our government's long-term vision for Ontario's energy system. Some of the key components of the LTEP are outlined below.

Pursuing Energy Conservation

- Ensuring that energy conservation continues to be one of our key goals as we implement the LTEP. This means helping ease the burden of rising energy costs on Ontario's ratepayers by pursuing conservation — wherever cost-effective — to meet energy needs when and where we need it.
- Implementing a Conservation First approach to energy planning, approval and procurement processes. You will do so by continuing to work with your ministry's agencies and with other ministers, including the President of the Treasury Board, the Minister of Economic Development, Employment and Infrastructure, and the Minister of Municipal Affairs and Housing.
- Ensuring that the Ontario Power Authority (OPA) and the Independent Electricity System Operator (IESO) prioritize the implementation of Ontario's Conservation First approach to invest in conservation first, before new generation, where cost-effective.
- Working with the Ontario Energy Board to incorporate the Conservation First policy into local distributor planning processes for electricity and natural gas utilities — and the natural gas demand-side management framework under development.

Mitigating Electricity Prices for Residential Customers

- Continuing to help Ontarians by addressing the challenges they face from increasing electricity costs. You will continue to look for savings and efficiencies that will help keep electricity costs affordable for residential consumers.
- Developing and implementing a new residential electricity assistance program to help make electricity more affordable, particularly for low-income families, who spend a proportionately higher percentage of their income on energy and electricity.

- 3 -

- Working with the Ministry of Finance to deliver on our commitment to remove the Debt Retirement Charge from residential electricity bills after December 31, 2015. Residential ratepayers will benefit significantly from this change, and it is important that you ensure its effective implementation.

Mitigating Electricity Prices for Businesses

- Continuing to implement initiatives that support Ontario's businesses by helping them address rising energy costs. I ask that you lead our efforts to meet our commitment in the LTEP to ensure that — where possible and appropriate — industrial electricity rate mitigation programs help support a dynamic and innovative climate for business to thrive, grow and create jobs.
- Helping to reduce energy costs for small business owners by implementing a five-point business energy savings plan, including on-bill financing and the expansion of saveONenergy for Business programs.
- Working with the Ontario Power Authority to implement a new stream of the Industrial Electricity Incentive program. This will provide electricity cost relief to companies that are able to establish or expand operations in Ontario.
- Proceeding with expansion of the Industrial Conservation Initiative. This will allow more businesses to benefit from lower electricity rates by shifting energy use away from peak periods — which, in turn, will benefit all electricity consumers by decreasing the need for costly peak generation.

Championing Renewable Energy

- Continuing to lead our government's commitment to renewable energy, with the aim of having 20,000 megawatts of renewable energy online by 2025. You will continue to monitor progress toward targets for wind, solar, bioenergy and hydroelectricity as part of Ontario energy reporting.
- Continuing to work with the ministry's agencies to implement a new competitive procurement process for renewable energy projects larger than 500 kilowatts that will take into account local needs and considerations.
- Continuing to respect the contracts that have been signed with energy producers, while always ensuring that these contracts enable the delivery of sustainable, affordable energy to Ontario's ratepayers.
- Working with the ministry's agencies and with municipal partners to ensure that municipalities participate meaningfully and effectively in the decision-making process for the placement of renewable energy projects, including wind and natural gas.

.../4

- 4 -

- Ensuring that timelines for meeting the LTEP's energy storage procurement targets are met and that they address the regulatory barriers that limit the ability of energy storage technologies to compete in Ontario's electricity market. As well, you will explore opportunities to build on the pilot projects through additional procurement.

Refurbishing Nuclear Power Plants

- Working with Ontario Power Generation and Bruce Power to ensure that the crucial refurbishment of 10 nuclear units at the Darlington and Bruce generating stations over the next 16 years is completed efficiently and effectively.

Implementing and Doing Research and Development for a Smart Grid

- Working with the Minister of Research and Innovation and with the Minister of Economic Development, Employment and Infrastructure to continue with implementation of smart meters, smart grid technologies and advancements in customer service and choice.

Driving Efficiencies and Maximizing Return on Investment from Electricity Sector Agencies

- Working with the Minister of Finance and the President of the Treasury Board to consider recommendations from the Advisory Council on Government Assets on how to maximize the potential of Hydro One and Ontario Power Generation. Your goal is to ensure that Ontarians receive the value they deserve from these government enterprises.
- Working with the OPA and the IESO to implement legislation merging the two agencies into a single entity. Your goal is a smooth transition that achieves savings and efficiencies for energy ratepayers.
- Continuing to work with local distribution companies to ensure that they operate as efficiently as possible and produce savings that will benefit Ontario's ratepayers. They will do so through options such as voluntary consolidations and innovative partnerships.

Supporting Community-Level Energy Planning

- Encouraging municipalities and Aboriginal communities to develop their own community-level energy plans — and identify conservation opportunities and infrastructure priorities — as part of our commitment in the LTEP. You will support these efforts through the Municipal Energy Plan Program and the Aboriginal Community Energy Plans Program.

Consulting with Aboriginal Communities

- Working with other ministries and agencies to ensure that First Nation and Métis communities are consulted on any energy activity that could adversely affect their Aboriginal or treaty rights. Our government has recognized that Aboriginal participation in the energy sector is one of the keys to the economic development of First Nation and Métis communities.

- 5 -

- Continuing to support and encourage participation by First Nation and Métis communities in new generation and transmission projects — and in conservation initiatives. You will do so through programs such as the Aboriginal Energy Partnerships Program.
- Connecting remote communities is a priority for Ontario. Success in connecting remote communities will depend on contributions from all of the parties that will benefit from it, which includes the federal government. The province looks forward to a fair cost-sharing agreement with its federal counterparts to make sure this project becomes a reality for First Nation communities.
- You will also work with the Minister of Aboriginal Affairs, the federal government, and other agencies and ministries as needed to ensure communities are positioned to benefit from grid connection or a reduction in their dependence on diesel. This will support stronger, healthier northern remote communities by reducing barriers to growth, increasing economic development opportunities, ensuring access to clean energy, and improving social and living conditions for residents. For those communities where connection to the provincial grid is not viable, you will promote local options, such as renewable energy generation, to help reduce reliance on diesel fuel.

Exporting Ontario's Energy Expertise

- Working with the Minister of Citizenship, Immigration and International Trade and with the Minister of Economic Development, Employment and Infrastructure to develop and support ways to promote Ontario's energy expertise abroad. This will include nuclear refurbishments, the elimination of dirty coal generation, smart grid implementation and technical expertise in transmission and distribution.

Helping Develop a Canadian Energy Strategy

- Collaborating, including across borders, on the development of a strategy to ensure a clean, reliable and sustainable energy supply. You will work with other ministers, including the Minister of the Environment and Climate Change, of Intergovernmental Affairs, and of Economic Development, Employment and Infrastructure on the development of a Canadian Energy Strategy with other provinces and territories. The strategy should balance national interests with the unique profiles, priorities and needs of individual provinces and territories.
- Ensuring that the strategy includes co-ordinated efforts to improve energy efficiency and conservation, reduce greenhouse gas emissions, foster innovation in the energy sector and facilitate the safe transportation and transmission of energy. You will work with the Minister of the Environment and Climate Change to encourage federal partnership in addressing the climate change challenge — which is both local and global in scale.

- 6 -

- Ensuring that the strategy facilitates electricity imports and exports between Ontario and its neighbouring provinces by identifying barriers, solutions and opportunities for the development of interconnected transmission infrastructure.

Helping Ontarians Share in Affordable Supplies of Natural Gas

- Supporting programs led by the Minister of Economic Development, Employment and Infrastructure to help ensure that Ontario residents and industries are able to share in affordable supplies of natural gas. These programs, outlined below, will give consumers in underserved communities more energy choices, make commercial transportation more affordable, attract new industry to Ontario and benefit our agricultural producers.
- Helping the Minister of Economic Development, Employment and Infrastructure establish and implement a new Natural Gas Access Loan. Our government will provide up to \$200 million over two years through this program to help communities partner with utilities to extend access to natural gas supplies.
- Helping the Minister of Economic Development, Employment and Infrastructure establish and implement a \$30 million Natural Gas Economic Development Grant to accelerate projects with clear economic development potential.

Protecting Ontario's Interests in Pipeline Development

- Continuing to intervene in regulatory hearings about major pipeline proposals that directly affect Ontario. You will ensure that these interventions are consistent with Ontario's six pipeline principles, as outlined in the LTEP.

We have an ambitious agenda for the next four years. I know that, by working together in partnership, we can be successful. The above list of priority initiatives is not meant to be exhaustive, as there are many other responsibilities that you and your ministry will need to carry out. To that end, this mandate letter is to be used by your ministry to develop more detailed plans for implementation of the initiatives above, in addition to other initiatives not highlighted in this letter.

I ask that you continue to build on the strong relationships we have with the Ontario Public Service, the broader public sector, other levels of government, and the private, non-profit and voluntary sectors. We want to be the most open and transparent government in the country. We want to be a government that works for the people of this province — and with them. It is of the utmost importance that we lead responsibly, act with integrity, manage spending wisely and are accountable for every action we take.

.../7

- 7 -

I look forward to working together with you in building opportunity today, and securing the future for all Ontarians.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Kathleen', with a stylized flourish at the end.

Kathleen Wynne
Premier

The Premier
of Ontario

Legislative Building
Queen's Park
Toronto, Ontario
M7A 1A1

La première ministre
de l'Ontario

Édifice de l'Assemblée législative
Queen's Park
Toronto (Ontario)
M7A 1A1



September 25, 2014

The Honourable Brad Duguid
Minister of Economic Development, Employment and Infrastructure
Eighth Floor, Hearst Block
900 Bay Street
Toronto, Ontario
M7A 2E1

Dear Minister Duguid:

I am honoured to welcome you to your role as Minister of Economic Development, Employment and Infrastructure. We have a strong Cabinet in place, and I am confident that together we will build Ontario up, create new opportunities and champion a secure future for people across our province. The people of Ontario have entrusted their government to be a force for good, and we will reward that trust by working every day in the best interests of every person in this province.

As we implement a balanced and comprehensive plan for Ontario, we will lead from the activist centre. We will place emphasis on partnerships with businesses, communities and people to help foster continued economic growth and make a positive impact on the lives of every Ontarian. This collaborative approach will shape all the work we do. It will ensure we engage people on the issues that matter the most to them, and that we implement meaningful solutions to our shared challenges.

Our government's most recent Speech from the Throne outlined a number of key priorities that will guide your work as minister. Growing the economy and helping to create good jobs are fundamental to building more opportunity and security, now and in the future. That critical priority is supported by strategic investments in the talent and skills of our people, from childhood to retirement. It is supported through the building of modern infrastructure, transit and a seamless transportation network. It is supported by a dynamic business climate that thrives on innovation, creativity and partnerships to foster greater prosperity. And it is reflected across all of our government, in every area, and will extensively inform our programs and policies.

As we move forward with our plan to grow the economy and create jobs, we will do so through the lens of fiscal prudence. Our 2014 Budget reinforces our commitment to balancing the budget by 2017-18; it is essential that every area adhere to the program-spending objectives established in it. We will choose to invest wisely in initiatives that strengthen Ontario's competitive advantage, create jobs and provide vital public services to our families. The President of the Treasury Board, collaborating with the Minister of Finance, will work closely with you and your fellow Cabinet members to ensure that our government meets its fiscal targets. The President of the Treasury Board will also lead the government's efforts on accountability, openness and modernization as we implement new accountability measures across government.

- 2 -

As Minister of Economic Development, Employment and Infrastructure, you will help to build a strong, diversified and globally competitive economy that will provide jobs, increase productivity and result in more prosperity for all Ontarians. You will ensure that our economic recovery is being felt in all areas of the province, and by all our people — including our youth. You will support a dynamic business climate — supported and enhanced by an innovative health care sector and a dynamic education system — that will help the province continue to attract new businesses to Ontario and compete globally for jobs and investment. You will co-ordinate the province's investments in world-class infrastructure — fostering economic growth and prosperity throughout the province.

Your ministry's specific priorities include:

Supporting a Dynamic Business Climate on a Foundation of Fiscal Responsibility

- Promoting Ontario's existing strengths and enhancing its reputation as a destination of choice for foreign and domestic private sector investments. You will create partnerships with business through new initiatives, such as the 10-year, \$2.5-billion Jobs and Prosperity Fund — and continue existing initiatives, such as the Eastern and Southwestern Ontario Development funds, and — working with the Minister of Northern Development and Mines — the Northern Ontario Heritage Fund.
- Collaborating with the Minister of Finance, the President of the Treasury Board and partner ministers to develop a framework to identify and evaluate optimal partnership investments. Your goal is to strengthen the province's approach to business supports while balancing the government's commitment to fiscal sustainability.
- Developing strategies for key-growth sectors, such as advanced manufacturing and automotive, agri-food, cleantech, financial services, information and communications technology, natural resources, tourism, media and culture. Together, these strategies will represent the government's broader economic policy objectives and will support investment and job creation. I ask that you work in co-operation with partner ministers, industry, postsecondary institutions and the not-for-profit sector to develop these strategies.
- Leading work, as the minister responsible for trade policy — in co-operation with the federal government and Canada's provinces and territories — to find ways of reducing trade barriers and increasing exports nationally and internationally.
- Partnering with the Minister of Citizenship, Immigration and International Trade to increase Ontario exports and promote Ontario-made goods and services.

- 3 -

- Working with the Minister of Citizenship, Immigration and International Trade to establish a ministerial working group. You and the minister will co-chair the group, which will include the ministers of: Agriculture, Food and Rural Affairs; Education; Energy; Health and Long-Term Care; Northern Development and Mines; Research and Innovation/Training, Colleges and Universities; Tourism, Culture and Sport and other ministers, as appropriate. The committee's objective is to ensure strong collaboration and information-sharing — and maximize international trade and foreign investment opportunities.
- Expanding the reach of Ontario's exports — particularly to fast-growing emerging markets — in partnership with the Minister of Citizenship, Immigration and International Trade. You will jointly pursue initiatives that expand the opportunity for Ontario firms to connect with foreign buyers and investors, showcase innovative goods and services, and find new markets.
- Providing support to communities that are still recovering from the global recession, with particular focus on Southwestern and Northern Ontario. You will work with partner ministers to develop strategies to attract new investment and jobs — and connect the demand for jobs with our highly trained workforce in these areas.
- Working in partnership with business and entrepreneurs to build on our existing commitment to create a strong social enterprise market in Ontario.
- Continuing to work with partner ministers and industry to explore initiatives to reduce regulatory and administrative burdens, as proposed in the Better Business Climate Act, 2014. If the legislation is passed, I ask that you begin to work with key partners to develop regional cluster plans. Your goal is to adopt smarter regulatory practices without putting public safety at risk.
- Continuing to implement the Ontario Youth Jobs Strategy, in partnership with the Minister of Training, Colleges and Universities. The strategy aims to address the youth unemployment rate by investing \$295 million in measures to connect young people with promising careers — and increase opportunities for youth across the province.
- Increasing the number of employment opportunities for Ontarians of all abilities by establishing new partnerships with business and persons with disabilities.
- Working with partners to build an accessible Ontario by 2025. I ask that you explore options to develop new accessibility standards in the education or health sector.

.../4

Building Modern Infrastructure

- Working with your colleagues in the legislature to seek the passage of Bill 6, the Infrastructure for Jobs and Prosperity Act, which would establish the requirements for long-term infrastructure planning.
- Leading the development of the province's long-term infrastructure plan. You will collaborate with partner ministers to identify the government's strategic priorities for infrastructure investment.
- Prioritizing the government's infrastructure investments — in partnership with the President of the Treasury Board — to ensure alignment with Ontario's economic development priorities.
- Continuing to support strong communities across Ontario by launching the new permanent Ontario Community Infrastructure Fund. The initiative will provide \$100 million per year for investment in roads, highways and water infrastructure projects in Ontario's small and mid-sized communities.

Developing Infrastructure Investment Strategies

- Seeking opportunities to further refine our capital investment strategies for infrastructure. Your goal is to align these strategies with asset management planning, growth planning, our economic goals, environmental priorities and the needs of Ontarians.
- Embracing opportunities to encourage the adoption of innovative technologies that support economic growth and long-term savings. I ask that you ensure that public infrastructure investments encourage the adoption of approaches that maximize the value of our infrastructure dollars and minimize the long-term cost of maintaining infrastructure assets — including ensuring resiliency to the impact of climate change.
- Implementing the proposed Infrastructure for Jobs and Prosperity Act, 2014, if passed. The act would enshrine evidence-based, long-term infrastructure planning in Ontario and support opportunities for apprenticeships, at-risk youth and local communities.

Maintaining Models of Alternative Financing and Procurement

- Continuing to refine the approach to delivering Ontario's highly effective Alternative Financing and Procurement (AFP) model — learning from the experience of past projects and current best practices. Your goal is to ensure that AFP remains the best system possible to deliver transit and other infrastructure projects on time, on budget and to specification.

- 5 -

Extending Access to Natural Gas

- Fulfilling our government's commitment to create a new Natural Gas Access Loan — which will provide up to \$200 million over two years to help communities partner with utilities to extend access to natural gas supplies. I also ask that you establish a \$30-million Natural Gas Economic Development Grant to accelerate projects with clear economic development potential. Your goal is to provide consumers in underserved communities more energy choices, make commercial transportation more affordable, attract new industry to Ontario, and benefit our agricultural producers.

We have an ambitious agenda for the next four years. I know that, by working together in partnership, we can be successful. The above list of priority initiatives is not meant to be exhaustive, as there are many other responsibilities that you and your ministry will need to carry out. To that end, this mandate letter is to be used by your ministry to develop more detailed plans for implementation of the initiatives above, in addition to other initiatives not highlighted in this letter.

I ask that you continue to build on the strong relationships we have with the Ontario Public Service, the broader public sector, other levels of government, and the private, non-profit and voluntary sectors. We want to be the most open and transparent government in the country. We want to be a government that works for the people of this province — and with them. It is of the utmost importance that we lead responsibly, act with integrity, manage spending wisely and are accountable for every action we take.

I look forward to working together with you in building opportunity today, and securing the future for all Ontarians.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Kathleen', with a stylized flourish at the end.

Kathleen Wynne
Premier

The Premier
of Ontario

Legislative Building
Queen's Park
Toronto, Ontario
M7A 1A1

La première ministre
de l'Ontario

Édifice de l'Assemblée législative
Queen's Park
Toronto (Ontario)
M7A 1A1



September 25, 2014

The Honourable Jeff Leal
Minister of Agriculture, Food and Rural Affairs
Ministry of Agriculture, Food and Rural Affairs
11th Floor, 77 Grenville Street
Toronto, Ontario
M7A 1B3

Dear Minister Leal:

I am honoured to welcome you to your role as Minister of Agriculture, Food and Rural Affairs. We have a strong Cabinet in place, and I am confident that together we will build Ontario up, create new opportunities and champion a secure future for people across our province. The people of Ontario have entrusted their government to be a force for good, and we will reward that trust by working every day in the best interests of every person in this province.

As we implement a balanced and comprehensive plan for Ontario, we will lead from the activist centre. We will place emphasis on partnerships with businesses, communities and people to help foster continued economic growth and make a positive impact on the lives of every Ontarian. This collaborative approach will shape all the work we do. It will ensure we engage people on the issues that matter the most to them, and that we implement meaningful solutions to our shared challenges.

Our government's most recent Speech from the Throne outlined a number of key priorities that will guide your work as minister. Growing the economy and helping to create good jobs are fundamental to building more opportunity and security, now and in the future. That critical priority is supported by strategic investments in the talent and skills of our people — from childhood to retirement. It is supported through the building of modern infrastructure, transit and a seamless transportation network. It is supported by a dynamic business climate that thrives on innovation, creativity and partnerships to foster greater prosperity. And it is reflected across all of our government, in every area, and will extensively inform our programs and policies.

As we move forward with our plan to grow the economy and create jobs, we will do so through the lens of fiscal prudence. Our 2014 Budget reinforces our commitment to balancing the budget by 2017-18; it is essential that every area adheres to the program-spending objectives established in it. We will choose to invest wisely in initiatives that strengthen Ontario's competitive advantage, create jobs and provide vital public services to our families. The President of the Treasury Board, collaborating with the Minister of Finance, will work closely with you and your fellow Cabinet members to ensure that our government meets its fiscal targets. The President of the Treasury Board will also lead the government's efforts on accountability, openness and modernization as we implement new accountability measures across government.

- 2 -

As Minister of Agriculture, Food and Rural Affairs, you will continue to support the growth of the agri-food sector, ensure the sustainability of agriculture and help develop rural economies.

Your ministry's specific priorities include:

Supporting the Growth of the Agri-Food Sector

- Identifying and acting upon opportunities to support the food processing industry and help farmers enhance their operations, including through the Food Industry Program under the Jobs and Prosperity Fund. I ask that you support the Premier's Agri-Food Challenge, which calls on the province's agri-food industry to double its growth rate and create 120,000 jobs by the year 2020.
- Promoting, encouraging and investing in innovative local food projects that celebrate the rich diversity of foods produced and made in Ontario, and which feed local economies and help communities grow.
- Working with industry and partners to address how the ministry can more effectively support clients as they deal with regulatory burdens.

Ensuring Sustainability of Agriculture

- Creating and implementing the new Farms Forever Program. The program will help preserve the productive capacity of agricultural land close to major urban centres, support the local sourcing of food, strengthen Ontario's agri-food sector and support young farmers.
- Continuing to work with partner ministers and the agricultural sector to decrease nutrient run-off, reduce greenhouse-gas emissions and make our agricultural sector as resilient as possible to climate change.
- Strengthening pollinator health. You will work with other ministers and stakeholders to develop a Pollinator Health Strategy for Ontario that includes sustainable, long-term initiatives aimed at improving the health of bees and other pollinators.
- Working with the Minister of the Environment and Climate Change, other ministers, industry partners and stakeholders, develop an action plan to meaningfully reduce neonicotinoid use for the 2015 growing season, including measurable targets. I also ask that you develop a system that requires a reduction in the use of seeds treated with neonicotinoid insecticides for the 2016 growing season through regulatory mechanisms, permitting or further measures as needed.

Providing Business Supports to Farmers

- Continuing to work with the federal government to implement the Growing Forward 2 initiative and develop Growing Forward 3, the latter calling for predictable, bankable and stable future national business risk management programs.
- Continuing to support supply management in the province, which helps maintain a stable, quality supply of products for Ontario's processors and consumers.
- Amending the *Crop Insurance Act* to enable the province to offer insurance for a broader range of agricultural products, such as bees and livestock. You will also work with the agricultural sector to identify and develop new insurance plans.

Expanding Agriculture in the North

- Working with other ministers and partners to explore opportunities to develop the agricultural sector in the North. This approach should prioritize opportunities on private land.

Fostering Vibrant Rural Economies

- Working with ministers and partners to continue to engage with rural stakeholders, deliver effective programs — such as the Rural Economic Development Program — and services to rural areas, and move forward with the Rural Roadmap.
- Continuing to work with other ministers to support the growth of manufacturing and the digital economy in rural Ontario.
- Supporting the work of the Minister of Economic Development, Employment and Infrastructure and the Minister of Energy to establish and implement natural gas initiatives. The programs will be funded under our \$130-billion infrastructure plan and will give consumers in underserved communities more energy choices, make commercial transportation more affordable, attract new industry to Ontario, and benefit our agricultural producers. Your goal is to help ensure that Ontario residents and industries are able to share in affordable supplies of natural gas.
- Continuing to work with other ministers and partners to support a sustainable, customer-responsive horse-racing industry that supports jobs and local economies; and to integrate horse racing within the broader Ontario gaming strategy.

We have an ambitious agenda for the next four years. I know that, by working together in partnership, we can be successful. The above list of priority initiatives is not meant to be exhaustive, as there are many other responsibilities that you and your ministry will need to carry out. To that end, this mandate letter is to be used by your ministry to develop more detailed plans for implementation of the initiatives above, in addition to other initiatives not highlighted in this letter.

- 4 -

I ask that you continue to build on the strong relationships we have with the Ontario Public Service, the broader public sector, other levels of government, and the private, non-profit and voluntary sectors. We want to be the most open and transparent government in the country. We want to be a government that works for the people of this province — and with them. It is of the utmost importance that we lead responsibly, act with integrity, manage spending wisely and are accountable for every action we take.

I look forward to working together with you in building opportunity today, and securing the future for all Ontarians.

Sincerely,



Kathleen Wynne
Premier

UNION GAS LIMITED

KETTLE POINT / LAMBTON SHORES NATURAL GAS PIPELINE PROJECT

Contents

PROJECT SUMMARY	2
MARKET PROFILE	4
PROPOSED FACILITIES.....	6
PROJECT COSTS	6
ECONOMIC FEASIBILITY	6
DESIGN AND CONSTRUCTION	8
ENVIRONMENTAL MATTERS	9
LAND MATTERS.....	11
FIRST NATIONS AND MÉTIS CONSULTATION	11

Schedules

Schedule 1	Map of Proposed Facilities
Schedule 2	Customer Attachment Forecast
Schedule 3	Letter of Support
Schedule 4	Schematic of Proposed Project
Schedule 5	Capital Costs by Year
Schedule 6	Project DCF Analysis
Schedule 7	DCF Analysis & Parameters
Schedule 8	Design and Pipeline Specifications
Schedule 9	Union's Standard Construction Methods
Schedule 10	Proposed Construction Schedule
Schedule 11	Environmental Protection Plan
Schedule 12	OPCC Summary
Schedule 13	Land Requirements Summary

PROJECT SUMMARY

1. Representatives of the Chippewas of Kettle and Stony Point First Nation, Municipal Officials, Residents, and Business Owners in and around Kettle Point and Lambton Shores which includes Ipperwash Beach ["Project Area"], in the County of Lambton, have requested natural gas service from Union Gas Limited ["Union"].
2. In order to meet the demands for natural gas in this area, Union is requesting pursuant to Section 90 (1) of the Ontario Energy Board Act, approval from the Ontario Energy Board ["OEB"] for Leave to Construct pipelines in Kettle Point and Lambton Shores ["Project"]. Union is also requesting an order from the OEB pursuant to section 36 (1), as described in earlier sections of this evidence.
3. Kettle Point, Ontario is the home of the Chippewas of Kettle and Stony Point First Nation, located along the southern shores of Lake Huron approximately 35 km east of Sarnia. Approximately 1000 First Nation Band members live on the reserve and 900 members live off the reserve. The First Nation community also borders the Municipality of Lambton Shores.
4. Lambton Shores, Ontario is a municipality in Lambton County that was established when the Towns of Bosanquet and Forest, and the villages of Thedford, Arkona, and Grand Bend amalgamated in 2001. Lambton Shores has an area of approximately 331 km² and a total population of approximately 10,656. Ipperwash Beach is one of the only areas in Lambton Shores that does not currently have natural gas service.
5. A map showing the proposed facilities from a starting point on Union's system to Kettle Point and Ipperwash Beach can be found at Schedule 1.
6. Additionally, Union is planning to develop local distribution networks which will service approximately 104 customers in the first year of the Project. These customers are not known at the time of the filing. Detailed maps of the service area will be finalized immediately prior to construction.

7. Union currently holds the Certificate of Public Convenience and Necessity (EB-2002-0252) and Franchise Agreement (RP-2001-0049/EB-2001-0711), for the County of Lambton.
8. The route of the Proposed Facilities was selected in order to optimize economic benefits and social features while minimizing environmental impacts.
9. If the Applications are approved, Union forecasts that 281 customers in the Project Area will have natural gas service by year 10 of the Project.
10. The total capital cost of the proposed facilities is approximately \$2,424,000.
11. The Project has a negative net present value ["NPV"] of (\$468,000) and a profitability index ["PI"] of 0.73.
12. An Environmental Protection Plan ["EPP"] for the Project has been prepared by Union's Environmental Planning Department. Union's standard construction procedures, combined with the appropriate supplemental mitigation measures recommended in the EPP, will be employed to address environmental and public concerns.
13. Construction of the proposed facilities for the Project is expected to begin in the spring of 2016 and continue through to fall of 2016.
14. The pipeline and station facilities have been sized to meet the forecast future growth proposed in the area. The Chippewas of Kettle and Stony Point First Nation have plans for the development of their Indian Hills Golf Course. Other future expansions off this system are expected in the Ipperwash Beach area.

MARKET PROFILE

Community Profile

15. Kettle Point, Ontario is the home of the Chippewas of Kettle and Stony Point First Nation, located along the southern shores of Lake Huron and approximately 35 km east of Sarnia. Approximately 1000 First Nation Band members live on the reserve and 900 members live off the reserve. The First Nation Community also borders the Municipality of Lambton Shores. There is a mix of Band-owned commercial and residential properties within the Community.
16. Lambton Shores, Ontario is a municipality in Lambton County that was established when the Towns of Bosanquet and Forest, and the villages of Thedford, Arkona, and Grand Bend amalgamated in 2001. Lambton Shores has an area of approximately 331 km² and a total population of approximately 10,656. The area of Lambton Shores that is proposed to receive natural gas service is the Ipperwash Beach area which is a combination of year-round and seasonal homes.
17. There are currently a total of 380 existing residential dwellings in Ipperwash Beach area, 95 existing residential dwellings in Kettle Point, and 21 medium and small commercial establishments in Kettle Point which could potentially be served with natural gas.

Residential and Commercial Surveys

18. For the Ipperwash Beach area, information about the Project, estimates of the cost to convert to natural gas, and an temporary expansion surcharge to contribute towards the cost of the Project was included in the telephone survey conducted in 2014. The telephone survey also requested information pertaining to dwelling characteristics, use of dwelling, current fuel type and interest in converting to natural gas-fuelled appliances.
19. At the time of this Application, of the 380 potential residential customers in the Ipperwash Beach area, only 22 have completed the telephone survey, representing a 6% response rate. Union Gas is planning a door-to-door survey to increase the participation rate.

Customer Attachment Forecast

20. Due to the low response rate of the 2014 survey in the Ipperwash Beach area, Union relied on a survey completed in the area in 2011. The results of this telephone survey indicated a 64% attachment rate for the Top 3 box score (extremely likely, very likely, and likely to convert). However, the survey in 2011 did not ask respondents the likelihood of connecting with an temporary expansion surcharge.
21. Based on experience of attachments rates with past projects Union has taken a conservative approach and reduced the attachments forecast to include extremely likely, very likely, and 50% of likely to convert. With this the overall attachment forecast for Lambton Shores is 47% and will be verified after the Application once the survey is complete.
22. Union has used results from historic First Nations Community projects and used an 82% attachment rate for residential customers and 100% attachment rate for commercial customers. The First Nations Community tends to own the commercial establishments. In addition to the consultations which have been held to date, Union plans to have a community meeting with Kettle Point.
23. Union has taken a conservative approach in spreading out the residential attachments out over ten years based upon historical average connection rates for Union's past four large projects.
24. Union is forecasting a total of 260 existing residential and 21 existing medium and small commercial will be attached by the tenth year of the Project as outlined in the customer attachment forecast in Schedule 2.
25. Union continues to work with the Municipality and the Chippewas of Kettle and Stony Point First Nation in the development of the Project. Attached at Schedule 3 is a Letter of Support from The Municipality of Lambton Shores. The Chippewas of Kettle and Stony Point First Nation support bringing natural gas to the area.

PROPOSED FACILITIES

26. Union is proposing to construct the following pipelines to serve the Project Area. The pipelines will start at the corner of Army Camp Road and Ravenswood Line and extend along Ipperwash Road to Highway 21. At this point the pipeline will “T” with one branch continuing along Ipperwash Road to East and West Parkway Drive. The second branch of the pipelines will go South on Highway 21 to the West Ipperwash Beach Road to serve the Kettle Point area. A schematic drawing showing the Project is provided in Schedule 4.
27. The pipelines identified above have been sized to meet the forecast future growth in the Project Area.
28. A local distribution network will be constructed to serve residents in the area. This network will be based on interest in natural gas service, constructability and the availability of funds.

PROJECT COSTS

29. The total estimated cost for the Proposed Project is approximately \$2,424,000. This cost includes all pipeline costs of \$1,966,000 and the cost of services \$458,000 for the first 10 years of the Project.
30. Estimates of the capital costs for the construction of the proposed pipeline facilities are provided in Schedule 5. The estimated costs cover all costs related to materials, construction and labour required to construct distribution mains, and regulating stations. This figure also includes estimated land costs and environmental costs.

ECONOMIC FEASIBILITY

31. The Proposed Facilities are required in order to expand natural gas distribution facilities to the Chippewas of Kettle and Stony Point First Nation and Ipperwash Beach.

32. A standalone Discounted Cash Flow (“DCF”) analysis was completed for the proposed expansion. Union has employed an economic feasibility test consistent with the Board’s recommendations in the E.B.O. 188 Report on Natural Gas System Expansion.
33. The DCF can be found at Schedule 6. This Schedule indicates a Net Present Value (“NPV”) of (\$468,000) and Profitability Index (“PI”) of 0.73. The DCF is based on capital of \$1,793,000. Capital used in the DCF is the cost of the design of the minimum sized facilities to support the attachment forecast. The difference in costs between the minimum sized facilities and the proposed system design is approximately \$631,000. The table below illustrates the minimum and proposed capital costs.

DCF Capital (\$000's)

	1	2	3	4	5	6	7	8	9	10
Total										
Pipeline & Station Capital	1,335	1,335								
Service , M&R Installation	458	203	84	32	23	17	22	19	22	20
Total	1,793	1,537	84	32	23	17	22	19	22	20

Proposed Capital (\$000's)

	1	2	3	4	5	6	7	8	9	10
Total										
Pipeline & Station Capital (1)	1,966	1,966								
Service , M&R Installation	458	203	84	32	23	17	22	19	22	20
Total	2,424	2,169	84	32	23	17	22	19	22	20

Notes

1. Refer to Schedule 5

Capital used for economics represents the minimum design to support the attachment forecast. The proposed capital will allow future growth to the system beyond the forecast.

34. The DCF shows the collection of the Temporary Expansion Surcharge (“TES”) for a period of 7 years, and the Incremental Tax Equivalent (“ITE”) for a period of 4 years. This is based on a term of 4 years for the TES and ITE for the Chippewas of Kettle and Stony Point First Nation. The collection from Lambton Shores is zero years for the ITE and 7 years for the TES. Lambton Shores did not agree to the ITE and as a result the TES is extended for Lambton Shores residents in order to equate to the equivalent amount.

35. The minimum term requirements of the ITE and TES is described in Exhibit A, Tab 1, Section 4.3, where it is stated that if the PI of a Community Expansion Project is less than 0.8 the TES and ITE shall have a minimum term of 4 years.
36. Schedule 7 provides the key inputs, parameters and assumptions used in completing the DCF analysis.

DESIGN AND CONSTRUCTION

37. The design and pipe specifications are outlined in Schedule 8. All the design specifications are in accordance with the *Ontario Regulations 210/01* under the *Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*. This is the regulation governing the installation of pipelines in the Province of Ontario.
38. All polyethylene pipe and fittings will be manufactured and certified in accordance with the *Canadian Standards Association B137.4-09 Polyethylene (PE) Piping systems for Gas Services*. The pipe specifications are designed to provide the maximum operating pressure of 550 kPa. The pipeline will be tested in accordance with the requirements of the Ontario Regulation.
39. The minimum depth of cover to the top of the pipe and pipe appurtenances will be in accordance with the requirements of *Clause 12.4.8 of the CSA Z662-11* for polyethylene piping. Additional depth will be provided to accommodate existing or planned underground facilities, or where greater depth of excavation is warranted.

Construction Procedures and Project Schedule

40. The Proposed Facilities will be constructed using Union's standard practices and procedures and will be in compliance with the mitigation measures identified in the Environmental Protection Plan ["EPP"]. Schedule 9 provides a summary of Union's standard construction methods. Union's construction procedures are continually updated and refined to minimize potential impacts to the lands and the public.

41. Material is readily available for the Project and Union foresees no problem in obtaining a contractor to complete the proposed construction. The EPP will be provided to the contractor.
42. Schedule 10 provides the proposed construction schedule for the Project. Construction of the proposed facilities is expected to begin in spring of 2016 and continue through to fall of 2016.
43. Approvals are pending from the County of Lambton, Municipality of Lambton Shores, St Clair Region Conservation Authority, Ministry of Transportation and the Chippewas of Kettle and Stony Point First Nation.

ENVIRONMENTAL MATTERS

44. An EPP for the proposed pipeline was prepared by Union's Environmental Planning Department. The EPP was prepared to meet the intent of the Board's document *"Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario"* [2011]. A copy of the EPP is provided as Schedule 11.
45. The objectives of the EPP are to:
 - a) document existing environmental features;
 - b) identify agency, First Nation and public concerns;
 - c) identify potential environmental impacts as a result of construction;
 - d) present mitigation techniques to minimize environmental impacts; and
 - e) provide pipeline contractors and environmental inspectors involved in the construction of the pipeline with general and site-specific guidelines for environmental protection that supplement Union's construction specifications.

46. The EPP was prepared before the scope of the Project was finalized. As such, some areas shown in the EPP may not be included in the Project.
47. All pipelines will be constructed in the manner recommended and described in the Board document *"Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario"*.
48. A copy of the EPP has been submitted to the Ontario Pipeline Coordinating Committee ("OPCC"), local municipalities and the Chippewas of Kettle and Stony Point First Nation. A summary of comments and Union's response will be provided in Schedule 12 as they are received.
49. There are a number of watercourse crossings associated with this project. Union will follow all permit conditions from the Regulating Agency.
50. Union will work with Aboriginal Affairs and Northern Development Canada (AANDC) and the Chippewas of Kettle and Stony Point First Nation to confirm any necessary approvals to construct on First Nation land.
51. When the Project is constructed, the most up-to-date construction specifications will be followed.
52. Union will ensure that the recommendations in the EPP, commitments and the conditions of approval are followed. An environmental inspector will be assigned to the Project to ensure that all activities comply with all of the Board's conditions of approval.
53. The results of the EPP indicate that the environmental and socio-economic effects associated with construction of the Project are generally short-term in nature and minimal. There are no significant cumulative effects as a result of this pipeline construction.

LAND MATTERS

54. The proposed pipelines will be located within road allowances.
55. It will be necessary to obtain a small station site at the corner of Ravenswood Line and Army Camp Road. Preliminary discussions have not identified any issues with obtaining the lands required for this station.
56. A table summarizing all the land requirements can be found in Schedule 13.

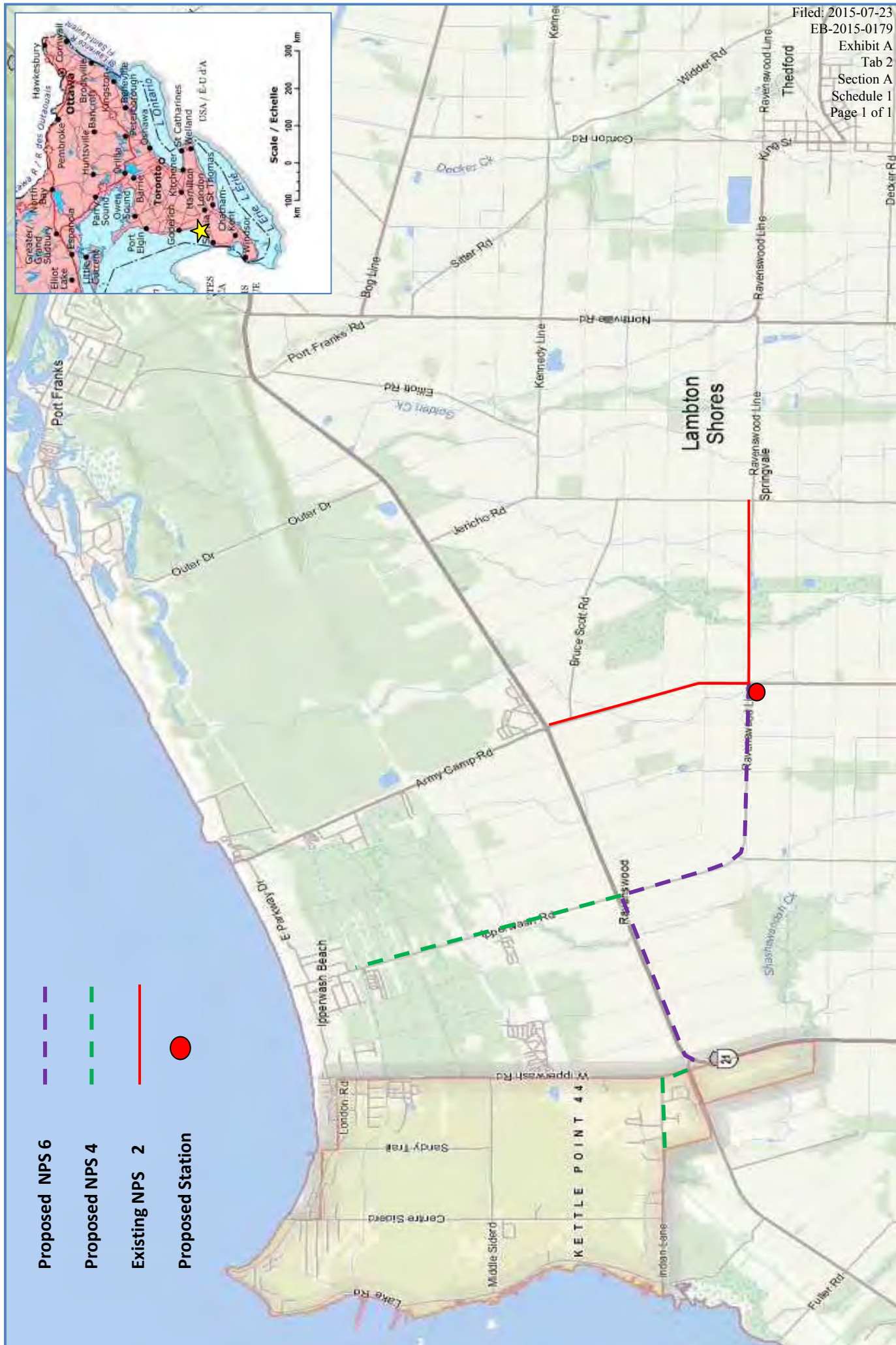
FIRST NATIONS AND MÉTIS NATIONS CONSULTATIONS

57. Union has a long standing practice of consulting with Métis and First Nations, and has programs in place whereby Union works with them to ensure they are aware of Union's projects and have the opportunity to participate in both the planning and construction phases of the Project.
58. Union has an extensive data base and knowledge of First Nations and Métis organizations in Ontario and consults with the Tribal organizations and the data bases of the Ministry of Natural Resources, Ministry of Energy and Aboriginal Affairs and Aboriginal Affairs and Northern Development Canada to ensure consultation is carried out with the most appropriate groups.
59. Union has consulted with Chippewas of Kettle and Stony Point First Nation since 2004 and continues to meet and consult with them on expansion of natural gas facilities to their community. The following is a summary of consultation which has occurred.

April 21, 2015	Union provided an email update to Lorraine George Band Manager Kettle and Stony Point First Nation on OEB filing information
Oct 1, 2014	Kettle and Stony Point First Nation submitted Scenario 1 and support material from the Union presentation to AANDC for funding
September 10, 2014	Meeting with Chief Bressette and Lorraine George Band Manager Kettle and Stony Point First Nation and Union to discuss project
May 28, 2014	Call with Jacklynn Martin Hill Kettle and Stony Point First Nation to

	discuss project and next steps
May 5, 2014	Union presented to Chief and Council. Council to respond on which approach to take in 2 weeks
February 13, 2014	Lorraine George Band Manager Kettle and Stony Point First Nation, Chief Tom Bressette and Union to review information on presentation before Chief and Council meeting. Chief requested we provide a full community piping proposal.
January 14, 2014	Comments from Kettle and Stony Point First Nation: Council endorsed the full development plan in principle with follow up reports and timelines to now be provided.
Aug. 29, 2013	Lorraine George Band Manager Kettle and Stony Point First Nation and Union met to discuss various options. Sept 17th Growth plan being presented to Chief and Council.
From 2006 - 2013	Union met with Kettle and Stony Point First Nation leadership and community teams on many occasions to discuss expansion into Community. Changes in leadership and community teams resulted in numerous iterations being developed and presented

60. During construction, Union has inspectors in the field who are available to First Nation's and Métis Nation of Ontario as a primary contact to discuss and review any issues that may arise during construction.
61. When Union completes the necessary archaeological assessments for the Project Union will consult with and provide the result of the surveys to any First Nations or Métis upon their request.



Lambton Shores and Kettle Point Attachment Forecast

Classification	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total	Ultimate Potential	Total Attachments % Potential
Residential Conversion - Upperwash Beach	48	43	16	12	9	11	10	11	10	9	179	380	47%
Residential Conversion - Kettle Point	17	15	6	4	3	4	3	4	4	3	63	77	82%
Residential Conversion Multi Family - Kettle Point	18	0	0	0	0	0	0	0	0	0	18	18	100%
Small Commercial	9	0	0	0	0	0	0	0	0	0	9	9	100%
Medium Commercial	12	0	0	0	0	0	0	0	0	0	12	12	100%
Total	104	58	22	16	12	15	13	15	14	12	281	496	57%



THE MUNICIPALITY OF
LAMBTON SHORES

Administration Office - 7883 Amtelecom Parkway, Forest, ON N0N 1J0
T: 519-786-2335/1-877-786-2335 F: 519-786-2135

June 4, 2015

Union Gas Ltd
James Whittaker
Manager of Construction & Growth
London/ Sarnia District
109 Commissioners Road W.
London, ON N6A 4P1

Re: Possible Expansion of Natural Gas to the Ipperwash Area

Dear Sir:

Lambton Shore' Council has been advised that Union Gas will be filing a proposal with the Ontario Energy Board for approval to provide natural gas service to the Ipperwash community.

Our understanding is that Union Gas' application will include proposals for specific forms of regulatory flexibility or exemptions from current Ontario Energy Board guidelines that apply to extending natural gas service to new communities.

The Municipality of Lambton Shores has always been supportive of Union Gas extending natural gas service to residents within our municipality, and wishes them success with this application.

Yours truly

A handwritten signature in black ink, appearing to read "Bill Weber". The signature is fluid and cursive, with the first name "Bill" being more prominent.

Bill Weber
Mayor

Proposed 6" Plastic
 Proposed 4" Plastic
 Existing 2" Steel
 Proposed Distribution

Kettle and

TOTAL ESTIMATED PIPELINE CAPITAL COSTS

KETTLE POINT & LAMBTON SHORES EXPANSION PROJECT

Pipeline and Equipment

NPS 6 PE Pipe, 5750 metres	\$143,028
NPS 4 PE Pipe, 5200 metres	\$64,058
NPS 2 PE Pipe, 9350 metres	\$31,395
1 Station, Valves, Fittings , Regulators and Miscellaneous Material	\$111,053

Sub-Total \$349,534

Total Pipeline and Equipment **\$349,534**

Construction and Labour

Lay 5750 metres of NPS 6 PE Pipe	\$540,477
Lay 5200 metres of NPS 4 PE Pipe	\$274,147
Lay 9350 metres of NPS 2 PE Pipe	\$390,147
Boring, , Testing, Slurry Disposal, etc	\$42,055
Fabrication and Distribution Station Installation	\$153,427

Company Labour, X-Ray, Construction Survey, Legal,
Mill Inspection and Consultants \$113,855

Easements, Lands, and Permits \$10,560

Total Construction and Labour **\$1,524,668**

Total Estimated Pipeline Capital Costs **\$1,874,202**

Escalation \$

Contingencies \$91,709

Interest During Construction \$

Total Estimated Pipeline Capital Costs **\$1,965,911**

Includes the Estimated Environmental Costs.

Lambton Shores - Kettle Point
Project Year (\$000's)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>
<u>Cash Inflow</u>														
Revenue	18	44	56	62	67	71	75	79	84	88	90	90	90	90
Expenses:														
O & M Expense	(3)	(7)	(10)	(11)	(12)	(14)	(15)	(16)	(17)	(19)	(19)	(20)	(20)	(21)
Municipal Tax	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)
Income Tax	12	19	16	13	12	10	8	6	5	3	2	1	0	(0)
Temporary Expansion Surcharge (TES)	42	99	120	130	64	69	62	-	-	-	-	-	-	-
Incremental Tax Equivalent (ITE)	3	3	3	3	-	-	-	-	-	-	-	-	-	-
Net Cash Inflow	57	143	170	182	114	120	115	54	56	57	57	55	54	53

<u>Cash Outflow</u>														
Incremental Capital	1,537	84	32	23	17	22	19	22	20	17	-	-	-	-
Change in Working Capital	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Outflow	1,537	84	32	23	17	22	19	22	20	17	0	0	0	0

<u>Cumulative Net Present Value</u>														
Cash Inflow	56	188	339	492	583	674	758	795	831	867	901	932	961	988
Cash Outflow	1,537	1,617	1,646	1,666	1,680	1,697	1,711	1,727	1,740	1,751	1,751	1,751	1,751	1,751
NPV By Year	(1,481)	(1,429)	(1,307)	(1,174)	(1,097)	(1,023)	(954)	(932)	(909)	(884)	(851)	(819)	(790)	(763)

Project NPV

-468

Profitability Index

By Year PI	0.04	0.12	0.21	0.30	0.35	0.40	0.44	0.46	0.48	0.50	0.51	0.53	0.55	0.56
Project PI	0.73													

Lambton Shores - Kettle Point
Project Year (\$000's)

<div> <div>Cash Inflow</div> <div>Revenue</div> <div>Expenses:</div> <div>O & M Expense</div> <div>Municipal Tax</div> <div>Income Tax</div> <div>Temporary Expansion Surcharge (TES)</div> <div>Incremental Tax Equivalent (ITE)</div> <div>Net Cash Inflow</div> </div>	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	(21)	(22)	(22)	(23)	(23)	(22)	(22)	(21)	(21)	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(23)
	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)
	(1)	(2)	(2)	(3)	(3)	(2)	(2)	(3)	(3)	(2)	(2)	(4)	(4)	(4)	(4)	(4)	(5)	(5)	(5)
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	52	51	50	49	48	47	40	40	39	39	38	37	37	37	37	37	37	37	36
<div> <div>Cash Outflow</div> <div>Incremental Capital</div> <div>Change in Working Capital</div> <div>Cash Outflow</div> </div>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0	0	0	0	0	0	(0)	(0)	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	(0)	(0)	0	0	0	0	0	0	0	0	0	0	0
<div> <div>Cumulative Net Present Value</div> <div>Cash Inflow</div> <div>Cash Outflow</div> <div>NPV By Year</div> </div>	1,013	1,037	1,059	1,079	1,098	1,116	1,130	1,144	1,157	1,169	1,180	1,190	1,200	1,209	1,209	1,209	1,209	1,209	1,209
	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751	1,751
	(738)	(715)	(693)	(672)	(653)	(636)	(621)	(608)	(595)	(583)	(571)	(561)	(551)	(542)	(532)	(522)	(512)	(502)	(492)

Project NPV

[illegible]

Lambton Shores - Kettle Point

[illegible]

**Lambton Shores - Kettle Point
(Project Specific DCF Analysis)**

**Stage 1 DCF - Listing of Key Input
Parameters, Values and Assumptions
(\$000'S)**

Discounting Assumptions

Project Time Horizon

40 years commencing at facilities in-service date of
01 Sep 16

Discount Rate

Incremental after-tax weighted average
cost of capital of 5.10%

**Key DCF Input Parameters,
Values and Assumptions**

Net Cash Inflow:

Incremental Distribution Revenue:

General Service rates
Temporary Expansion Surcharge (TES)
Incremental Tax Equivalent (ITE)
Term of TES and ITE

Approved per EB-2014-0356 Effective January 1, 2015
\$0.23 / M3
Estimated year 1 property tax
TES 4 years for Kettle Point
TES 7 years for Lambton Shores
ITE 4 years for Kettle Point, zero for Lambton Shores

Operating and Maintenance Expense

Estimated incremental cost

Incremental Tax Expenses:

Income Tax Rate

26.5%

CCA Rates:

CCA Classes:

Eligible Capital Expenditure (ECE)

Declining balance depreciation rates by CCA class:

Class 51 (Distribution Mains)

7%

Class 51 (Distribution Services)

6%

Class 51 (Measuring & Regulating Equipment)

6%

6%

Cash Outflow:

Incremental Capital Costs Attributed

Refer to Schedule 5

Change in Working Capital

5.0513% applied to O&M

**KETTLE POINT AND LAMBTON SHORES DESIGN AND PIPE
SPECIFICATIONS
POLYETHYLENE PIPING**

Design Specifications

Design Factor	-	0.40
Maximum Operating Pressure	-	550 kPa
Test Medium	-	Air , Nitrogen, or Water
Minimum Test Pressure	-	770 kPa
Minimum Depth of Cover (General)	-	0.6 m
Minimum Depth of Cover (Road Crossings)	-	0.6 m
Minimum Depth of Cover (Water Crossings)	-	1.2 m

Pipe Specifications

Size	-	NPS 6
SDR	-	11
Description	-	C.S.A. Standard B137.4-09
Size	-	NPS 4
SDR	-	11
Description	-	C.S.A. Standard B137.4-09
Size	-	NPS 2
SDR	-	11
Description	-	C.S.A. Standard B137.4-09

GENERAL TECHNIQUES AND METHODS OF CONSTRUCTION

1. Union Gas Limited (“Union”) will provide its own inspection staff to enforce Union’s construction specifications and *Ontario Regulation 210/01 under the Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*.
2. Pipeline construction is divided into several crews that create a mobile assembly line. Each crew performs a different function, with a finished product left behind when the last crew has completed its work.
3. Union’s contract specifications require the contractor to erect safety barricades, fences, signs or flashers, or to use flag persons as may be appropriate, around any excavation across or along a road.
4. It is Union’s policy to restore the areas affected by the construction of the pipeline to “as close to original condition” as possible. As a guide to show the “original condition” of the area, photos and/or a video will be taken before any work commences. When the clean up is completed, the approval of the landowner or appropriate government authority is obtained.
5. Construction of the pipeline includes the following activities:

Locating Running Line

6. Union establishes the location where the pipeline is to be installed (“the running line”). For pipelines within road allowances, the adjacent property lines are identified and the running line is set at a specified distance from the property line.

Stringing

7. The pipe is strung adjacent to the running line. The joints of pipe are laid end-to-end on supports that keep the pipe off the ground to prevent damage to the pipe coating.

Welding

8. The pipe is fused into manageable lengths.

Burying

9. Pipe may be buried using either the trench method or the trenchless method. All utilities that will be crossed or paralleled by the pipeline are located by the appropriate utility prior to installing the pipeline. Prior to trenching, all such utilities will be hand-located or hydro vacuumed.

Trench Method: Trenching is done by using a trenching machine or hoe excavator depending upon the ground conditions. Provisions are made to allow residents access to their property, as required. All drainage tiles that are cut during the trench excavation are flagged to signify that a repair is required. Next, the pipe is lowered into the trench. All defects in the coating are repaired before the pipe is lowered in. Next, if the soil that was excavated from the trench is suitable for backfill, it is backfilled. If the soil is not suitable for backfill (such as rock), it is hauled away and the trench is backfilled with suitable material such as sand. After the trench is backfilled, drainage tile is repaired.

Trenchless Method: Trenchless methods are alternate methods used to install pipelines under railways, roads, sidewalks, trees and lawns. There are two trenchless methods that could be used for the proposed pipeline, depending on the soil conditions, and the length and size of the installation. These methods are boring (auguring) and directional drilling.

Tie-Ins

10. The sections of pipelines that have been buried using either the trench or trenchless method are joined together (tied-in).

Cleaning and Testing

11. To complete the construction, the pipeline is cleaned, tested in accordance with Union's specifications.

Restoration

12. The final activity is the restoration. The work area is leveled, the sod is replaced in lawn areas and other grassed areas are re-seeded. Where required, concrete, asphalt and gravel are replaced to return the areas to as close to the original conditions as possible.

Kettle Point and Lambton Shores Expansion

Pipeline Construction Schedule

Task Name	2015												2016												2017		
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
Environmental Assessments and Approvals																											
Engineering																											
Pre-Construction Survey																											
Material Acquisition																											
File Application																											
OEB Approval																											
Construction Survey																											
Construction and Testing																											
Clean-Up																											
In-Service																											

KETTLE POINT / LAMBTON SHORES NATURAL GAS PIPELINE PROJECT ENVIRONMENTAL PROTECTION PLAN

**Prepared By: Union Gas Limited
Environmental Planning
May 2015**

TABLE OF CONTENTS

Kettle Point / Lambton Shores Natural Gas Pipeline Project Environmental Protection Plan

		<u>Page No.</u>
1.0	Introduction	1
2.0	Project Background	2
3.0	Planning Process.....	3
	3.1 Key Activities.....	3
4.0	Consultation.....	4
5.0	Routing	4
	5.1 Routing Selection	4
6.0	Construction, Operation and Maintenance	5
	6.1 General Construction Practices	5
	6.2 Operation and Maintenance Practices	6
7.0	Potential Impacts and Mitigation	7
	7.1 General Environmental Features	7
	7.2 Mitigation Summary.....	9
8.0	Cumulative Impacts.....	9
9.0	Summary and Recommendations.....	10

Appendices

Appendix 1	Project Location Maps
Appendix 2	Table 1, Pipeline Construction - Mitigation Summary
Appendix 3	Generic Sediment Control Plan for Watercourse Crossings by Horizontal Directional Drill
Appendix 4	Photographs

Kettle Point / Lambton Shores Natural Gas Pipeline Project Environmental Protection Plan

1.0 INTRODUCTION

Union Gas has been bringing clean, reliable, and affordable natural gas service for more than a century to over 400 communities across Ontario and as part of its Community Expansion Program, is proposing to bring natural gas service to the residents and businesses in the communities of Kettle Point and Lambton Shores.

This Environmental Protection Plan (EPP) has been prepared to document a plan for the protection of the environment during construction of a natural gas pipeline system by Union Gas Limited (Union), to provide natural gas service to Kettle Point and Lambton Shores.

Specifically this report will:

- Describe the proposed work necessary for the project;
- 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 public consultation opportunities.

Kettle Point, Ontario is the home of the Chippewas of Kettle and Stony Point First Nation, located along the southern shores of Lake Huron approximately 35 km east of Sarnia. Approximately 1000 First Nation Band members live on the reserve and 900 members live off the reserve. The First Nation community also borders the Municipality of Lambton Shores.

Lambton Shores, Ontario is a municipality in Lambton County that was established when the Towns of Bosanquet and Forest, and the villages of Thedford, Arkona, and Grand Bend amalgamated in 2001. Lambton Shores has an area of approximately 331 km² and a total population of approximately 10,656. The area of Lambton Shores that is proposed to receive natural gas service is located immediately east of Kettle Point in the community of Ipperwash Beach. Mapping for the project can be found in Appendix 1.

Kettle Point / Lambton Shores Natural Gas Pipeline Project Environmental Protection Plan

The project will include constructing a lateral pipeline from a proposed distribution station located at the intersection of Army Camp Road and Ravenswood Line in Lambton Shores to provide service to portions of Kettle Point and Lambton Shores.

The lateral pipeline system will be approximately 11.0 km in length consisting of 5.8 km of NPS 6 inch plastic pipeline (NPS 6 PE piping) and 5.2 km of NPS 4 inch plastic pipeline (NPS 4 PE piping). The NPS 6 PE piping will originate from the proposed distribution and extend along Ipperwash Road and southerly along Lakeshore Road (Highway 21) to West Ipperwash Road. The NPS 4 PE piping will be 1.3 km in length along West Ipperwash Road and Indian Lane in Kettle Point and 3.9 km in length along Ipperwash Road and West Parkway Drive in Lambton Shores. A map identifying the running line is attached in Appendix 1.

The EPP defines the environmental features potentially affected by the proposed pipeline and documents the various environmental protection measures that will be implemented by Union during pipeline construction to reduce the impact on these features.

2.0 PROJECT BACKGROUND

Kettle Point is named after the spherical rock formations known as “kettles” that have been eroded from the shale rock beds along the shores of Lake Huron. Including Kettle Point, these “kettles” are unique to only three places in the world. The protection of the environment is a high priority for the Chippewas of Kettle and Stony Point First Nation as they are dedicated to preserving the environment for future generations.

The community of Ipperwash Beach is home to part-time and full-time residents and is a popular destination for vacationers as it is home to one of Ontario’s longest beaches. The protection of the environment is also a high priority for the residents of Ipperwash Beach as they regularly take advice from the Ministry of Natural Resources and Forestry (MNR) to help make the area more beautiful and protect it from invasive plant and waterborne species.

Union and Kettle Point/Lambton Shores have been looking to bring natural gas to their respected communities for many years. Union and the people of Kettle Point/Lambton Shores are looking

Kettle Point / Lambton Shores Natural Gas Pipeline Project Environmental Protection Plan

again to bring natural gas to their communities and are committed to working together to protect the environment throughout all stages of the project.

Union is committed to working with the Chippewas of Kettle and Stony Point and Lambton Shores, Lambton County, the MNRF, Ministry of Tourism, Culture and Sport (MTCS), St. Clair Region Conservation Authority (SCRCA), Aboriginal Affairs and Northern Development Canada (AANDC) and any other party that may have an interest in the project in order to ensure environmental protection and to secure all necessary permits or approvals.

An Archaeological Assessment and a Heritage Assessment will be completed prior to construction in accordance with the MTCS guidelines and a review for any species of concern will be conducted.

Once all approvals have been received for the project, Union or its Agent will contact all people who will be directly affected by pipeline construction. If landowners have site specific concerns, Union or its Agent will meet with them to discuss details relating to construction. A Union supervisor or its Agent will be on site at all times during construction to deal with any questions that may arise.

Once the pipeline is in operation, Union or its Agent will initiate an ongoing maintenance program to ensure the integrity of the pipeline.

3.0 PLANNING PROCESS

3.1 Key Activities

The following is a summary of the key activities for the development of the Kettle Point/Lambton Shores Natural Gas Pipeline Project:

Project Initiation	February, 2015
Finalize Environmental Protection Plan	April, 2015
Construction	As early as Fall 2015/Spring 2016
Pipeline In Service	Fall, 2015/Fall 2016
Post Construction Monitoring	Spring 2016/Spring 2017

4.0 CONSULTATION

Union informed the Chippewas of Kettle and Stony Point First Nation of their proposal and provided them with information regarding the benefits of natural gas and the approximate costs of converting to natural gas during spring 2014.

Telephone surveys will be conducted in Lambton Shores to determine the level of interest in receiving natural gas service and to inform them of Union's proposal. Previous telephone surveys were conducted to provide the residents of Lambton Shores with information regarding the benefits of natural gas and the approximate costs of converting to natural gas.

Union's construction group has discussed the proposal with the local road authorities to ensure that any issues or concerns are addressed. To date, no concerns have been raised.

Once OEB approval has been received, Union or its Agent will contact all groups who will be directly affected by pipeline construction.

5.0 ROUTING

5.1 Route Selection

In determining the route for the pipeline in Kettle Point, Union's District Office looked for a route that offered the most natural gas connections. A route running along West Ipperwash Road and Indian Lane provides the potential for the most natural gas connections as there are a number of residential and commercial properties including a grade school, health centre, police services branch, administration centre, and a business plaza.

In determining the route for the pipeline in Lambton Shores, Union's District Office looked for a route that offered the most natural gas connections. A route running along Ipperwash Road (the main road running through the community of Ipperwash Beach) and West Parkway Road provides the potential for the most natural gas connections as they intersect several roads that are proposed to receive natural gas service. There are also a number of residential properties, a

Kettle Point / Lambton Shores Natural Gas Pipeline Project Environmental Protection Plan

family campground, general store, and trailer park located on Ipperwash Road/West Parkway Road.

Please see Appendix 1 for the preferred running line and Appendix 4 identifying a number of photos along the proposed running line.

6.0 CONSTRUCTION, OPERATION AND MAINTENANCE

6.1 General Construction Practices

Clearing and Grading

This prepares the right-of-way to allow the construction of the pipeline. If required, brush, trees and grass are cut or removed and the ground levelled.

Stringing

Pipeline stringing will not be required as part of this project. All pipe material used will be plastic and installed off spools.

Trenching

To install the pipeline a trench will be dug. The trench is usually prepared using an excavator. The width of the trench is approximately 0.5 m and the depth will be a minimum of 0.8 m.

The excavator will dig the trench and place the spoil in a pile beside the trench. Once the trench is excavated, the pipeline will be installed and if the spoil is suitable, it will be placed back in the trench. Any unsuitable spoil will be removed from the site and disposed of in an appropriate manner.

Trenchless Installations

Trenchless installation of the pipeline will be used to install sections of the line in environmental or cultural sensitive areas (watercourses, woodlots or cultural heritage sites), road crossings, rail crossings and for portions of the distribution network within Kettle Point and Lambton Shores.

The trenchless installations will be completed using horizontal directional drilling (HDD) or boring.

Road Crossings

Kettle Point / Lambton Shores Natural Gas Pipeline Project Environmental Protection Plan

It is proposed that all paved road crossings will be drilled. The procedure of drilling is essentially drilling a hole under the roadway, removing the auger and inserting the pipeline into the hole. To set the auger in place, sending and receiving pits will be dug on either side of the road. The length of the crossing and the size of the pipe determine the size of the drilling equipment and sending and receiving pits.

In the event that it is not possible to drill the crossings, they will be open cut after discussions with the local roads authority. The public will be notified of any road closures. Union or its Agent will attempt to maintain one lane of traffic at all times.

Cleaning and Testing

To complete construction, the pipeline is cleaned and pressure tested in accordance with the Energy Act.

Restoration

It is Union's policy to restore the affected areas to "as close to original" condition as practicable. To ensure the quality of the restoration, pictures of the construction area will be taken before the work commences.

6.2 Operation and Maintenance Practices

Like any system, once the pipeline system is installed it has to be maintained and serviced on a regular basis. The following paragraphs will describe the most common work to be performed by Union personnel after the gas main has been installed.

Locates

Union provides a free locate service to any person or business who may be working near a pipeline. The pipeline locator is comprised of two parts: a transmitter and a receiver. To perform a locate, the transmitter is connected to the gas facility. The transmitter sends a small current through the facility, which is picked up by the receiver. The location of the pipeline is then marked using stakes or yellow paint. No excavation is required.

Leak Surveys

Kettle Point / Lambton Shores Natural Gas Pipeline Project Environmental Protection Plan

To ensure that there are no leaks in the system, a company representative or Agent will "leak survey" the pipeline. The leak surveyor will walk along the gas main and carry a small machine that can detect natural gas. No excavation is required to complete the leak survey. However, if leaks are detected, excavations will be required to repair the pipeline.

7.0 POTENTIAL IMPACTS AND MITIGATION

7.1 General Environmental Features

Union has retained Neegan Burnside Ltd. (Neegan Burnside), a majority owned aboriginal firm, to review the proposed running line for environmental constraints and sensitive features. Union will work with Neegan Burnside to develop mitigation measures to minimize negative impacts to any features identified.

Watercourse Crossings

It will be necessary to cross a number of watercourses as part of the project.

Watercourses will be crossed above the existing culverts where depth of cover is adequate. Where this is not possible, watercourses will be crossed using the HDD drilling method and will be completed as per the Union Gas Limited and Fisheries and Oceans Canada – Ontario Great Lakes Area Agreement (DFO-OGLA/UGL AGREEMENT 2008). The crossing plans for HDD can be found in Appendix 3.

There are no in-stream timing windows associated with HDD crossings and as according to the Agreement, there are no concerns with Species at Risk when watercourses are installed using the HDD method.

By drilling all watercourses, Union does not anticipate any impacts to watercourses.

Union will adhere to its agreement with the Department of Fisheries and Oceans Canada (DFO) and will acquire any necessary watercourse crossing permits from the MNRF and SCRCA.

Tree Clearing

Tree clearing is not anticipated to occur as part of this project.

Should tree clearing become necessary, it will be restricted from occurring between April 1 to August 31 in accordance with the Migratory Bird Convention Act and Migratory Bird Regulations, to avoid bird nests and eggs. If project scheduling requires the removal of trees or shrubs during the nesting period, a qualified ornithologist will be required to assess the area of removal for evidence of nesting activity prior to removal to avoid any potential loss of active nests.

Cultural Heritage Resources

Union will retain the services of a licensed archaeological consultant to initiate a Stage I Archaeological Assessment and, if required, a Stage II Archaeological Assessment.

The survey will take place prior to construction in accordance with the MTCS guidelines to identify known or potential archaeological planning constraints within the project area. The survey will serve to confirm the presence of significant archaeological resources subject to potential impacts from the proposed project activities.

If deeply buried cultural remains are encountered during construction, all activities will be suspended and the archaeological consultant as well as the MTCS will be contacted to determine the appropriated course of action.

Union will retain a Heritage Specialist from an independent third party consultant to review the running line for potential cultural heritage landscapes and built heritage resources. Union will follow the recommendations of the Heritage Specialist.

As construction is proposed to remain entirely within the disturbed portion of the road allowance, it is anticipated there will be no impacts to archaeological resources, built heritage resources or cultural heritage landscapes.

Water Wells

A hydrogeologist will review the area before construction. Based on this pre-construction assessment, a water well monitoring program will be implemented in areas where the hydrogeologist believes that pipeline construction may affect water wells. The hydrogeologist

Kettle Point / Lambton Shores Natural Gas Pipeline Project Environmental Protection Plan

will also be available during construction in the event that there are complaints regarding water wells.

Species at Risk

Union has retained Neegan Burnside Ltd. to review the running line for potential species at risk and determine if any species will be impacted by construction activities. If species at risk are identified, Union will work with the consultant and the appropriate governing agency to develop an appropriate mitigation plan.

Mitigation could include avoiding certain areas at sensitive times, directional drilling sensitive areas, or any measure that helps reduce potential impacts. Impacts to sensitive species are anticipated to be minor in nature as the pipeline will be located within the disturbed portion of the road allowance and many features will be directionally drilled.

7.2 Mitigation Summary

Table 1 located in Appendix 2 provides a general summary of the potential impacts, as well as the proposed mitigation measures that will be implemented during construction to minimize impacts on the environment. These measures will be implemented as well as the specific measures identified in section 7.1.

8.0 CUMULATIVE IMPACTS

The following section considers the cumulative effects of construction on the lands due to the project. The definition of cumulative effects used in this report is: “changes to the environment that are likely to result from a particular project in combination with other projects or activities that have been or will be carried out”.

It is expected that construction of the natural gas pipeline system in Kettle Point/Lambton Shores will result in both minor positive and negative cumulative effects. There may be cumulative impacts between this pipeline and other projects in the area, although at this time Union and Kettle Point/Lambton Shores are unaware of any projects that would interact with this proposal.

Kettle Point / Lambton Shores Natural Gas Pipeline Project Environmental Protection Plan

Additional noise, dust and traffic could be an issue should construction occur concurrently, however, the benefits of having these facilities will, in the long term, be a positive impact. It is not expected that any threshold or triggers will be exceeded since the construction of this pipeline is generally minor in nature and takes place in a previously disturbed area. Indirect benefits that are expected include increased development in the area with the availability of natural gas.

Constructing natural gas pipelines within road allowances that have been previously disturbed will focus, if not entirely limit, cumulative effects to a corridor planned and designated for infrastructure projects.

9.0 SUMMARY AND RECOMMENDATIONS

This Environmental Protection Plan describes a strategy for the protection of the Environment during the construction of a natural gas pipeline system in Kettle Point/Lambton Shores. The plan has been developed by noting the environmental features in the area and the potential impacts of construction. The plan recommends a number of measures to reduce the impacts of the development.

It is recommended that the pipeline be monitored the year after construction to ensure that restoration measures were effective. If additional restoration measures are required, they should be completed as soon as possible. It is also recommended that landowners and tenants have access to Union Gas or its Agent and Kettle Point/Lambton Shores personnel in order to address any concerns that may arise during construction.

With the implementation of the recommended mitigation measures, and ongoing landowner and agency communication, the Kettle Point/Lambton Shores Natural Gas Pipeline Project is not anticipated to have any significant adverse environmental or socio-economic effects.

Appendix 1

Project Location Maps

Proposed NPS 6

Proposed NPS 4

Existing NPS 2

Proposed Station

Lambton Shores

Scale / Echelle

0 100 200 300 km

Map of Lambton Shores showing proposed and existing NPS routes. The map includes a legend with four categories: Proposed NPS 6 (purple dashed line), Proposed NPS 4 (green dashed line), Existing NPS 2 (red solid line), and Proposed Station (red dot). The map shows a network of roads and a proposed station near the intersection of Bruce Scott Rd and Ravenswood Line. An inset map shows the location of Lambton Shores within the Great Lakes region of Ontario, Canada, with a scale bar from 0 to 300 km.

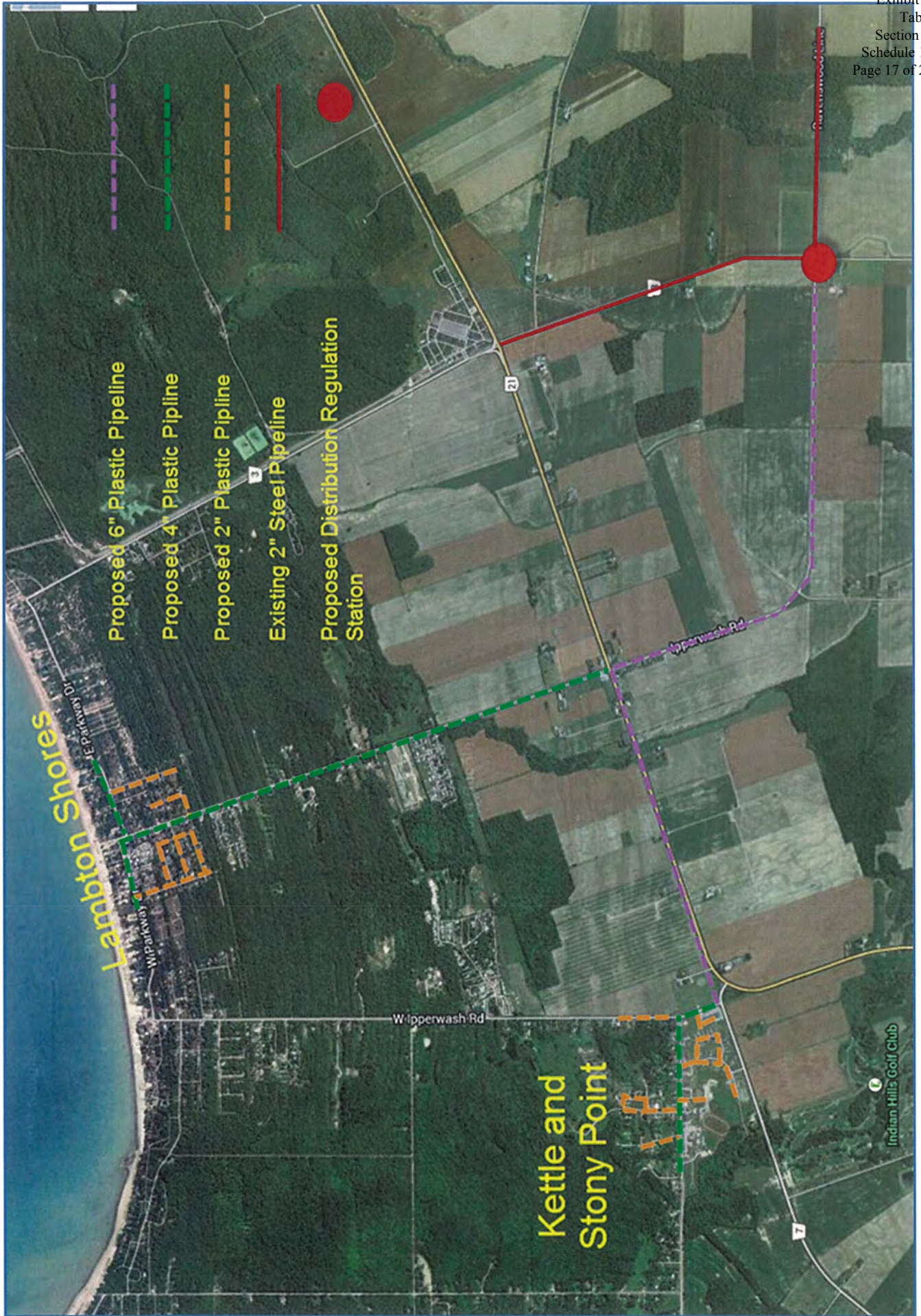
KETTLE POINT PROPOSED PIPING



LAMBTON SHORES PROPOSED PIPING



PROPOSED DISTRIBUTION STATION LOCATION



Appendix 2

Table 1

Pipeline Construction – Mitigation Summary

**TABLE 1: MITIGATION SUMMARY
PIPELINE CONSTRUCTION**

Issue	Potential Impact	Proposed Mitigation
Paved Driveways and Roadways	Disruption to local traffic, landowners and tenants	<ul style="list-style-type: none"> • All paved roadways and driveways to be bored if practical. • If it is not possible to bore driveways and roads, steel plates will be on site to provide access to landowners and tenants. The Company will attempt to keep one lane of traffic open if possible. Traffic controls will be implemented as required. • Driveways will be repaired as soon as possible. • For driveways that require cutting, the excavation is to be filled with sand and granular material and compacted.
Gravel Driveways and Roadways	Disruption to landowners and tenants	<ul style="list-style-type: none"> • Roadways and driveways will be open cut. • Maintain one lane of traffic if possible. Implement traffic controls as required. • Steel plates will be kept on site to provide access to landowners and tenants. • Driveways will be repaired as soon as possible.
Traffic	Disruption to local citizens	<ul style="list-style-type: none"> • At least one lane of traffic will be maintained at all times. • Flag persons and warning devices will be used to notify traffic of the construction zone in accordance with Ministry of Transportation standards.
Public Safety	Public safety concerns	<ul style="list-style-type: none"> • Company inspectors to ensure public safety on construction site. • Ensure proper signage and flag persons if required.
Commercial/Retail Businesses and Recreational Areas	Disruption to businesses	<ul style="list-style-type: none"> • Ensure access at all times. • Restore area as soon as possible after construction. • Schedule construction with owners or managers, where necessary.
Construction Noise	Disturbance to landowners and tenants	<ul style="list-style-type: none"> • Construction to be carried out during daylight hours whenever possible. • Ensure equipment is properly muffled.
Nuisance Dust	Disruption to landowners and tenants.	<ul style="list-style-type: none"> • Control dust as required.
Construction Equipment	Disruption to landowners and	<ul style="list-style-type: none"> • Equipment will be stored off road

**TABLE 1: MITIGATION SUMMARY
PIPELINE CONSTRUCTION**

Issue	Potential Impact	Proposed Mitigation
	tenants	shoulders when not in use.
Landowner Concerns	Disruption to landowners and tenants	<ul style="list-style-type: none"> • The Company to provide landowners and tenants with the telephone numbers of supervisory personnel.
Fences	<p>Disruption to landowners and tenants.</p> <p>Loss of control of animals inside fenced areas.</p>	<ul style="list-style-type: none"> • Landowners and tenants will be contacted before any fences are disturbed. • Temporary fencing will be erected if requested by landowner or tenant. • Fences will be replaced as soon as possible.
Front Yards	Disruption to landowners and tenants.	<ul style="list-style-type: none"> • Landowners and tenants will be notified prior to construction. • Restore lawns and yards to original condition
Mailboxes	Disruption to Landowners	<ul style="list-style-type: none"> • Notify landowners prior to construction. • Restore as soon as possible. • Provide temporary alternative if necessary.
Underground Utilities	Disruption of services	<ul style="list-style-type: none"> • Obtain "locates" from all utilities. • If utilities are damaged, repair as soon as possible.
Archaeology	Disturbance of heritage resources	<ul style="list-style-type: none"> • An archaeological assessment will be completed prior to construction • Stop construction if artifacts are encountered. • Notify Ontario Ministry of Tourism, Culture and Sport.
Water Wells	Disruption to water supply	<ul style="list-style-type: none"> • If water quality/quantity problems occur as a result of construction activities, the Company will supply potable water until the situation has been corrected. • Conduct hydrogeology investigation and monitor wells as required.
Trees	<p>Damage to Trees</p> <p>Disturbance to wildlife</p>	<ul style="list-style-type: none"> • No tree removal is anticipate • If necessary to remove trees, alter alignment to avoid trees if possible. • Pipeline to be located one metre from base of tree if possible. • Trees to be removed outside of avian nesting window • Discuss restoration plans with

**TABLE 1: MITIGATION SUMMARY
PIPELINE CONSTRUCTION**

Issue	Potential Impact	Proposed Mitigation
		landowner.
Watercourse Crossings	Water quality concerns	<ul style="list-style-type: none"> • Union will comply with all permit conditions. • Union will adhere to all Company specifications and Department of Fisheries and Oceans endorsed Generic Sediment Control plans for watercourse crossings.
Natural Areas	Sedimentation run-off	<ul style="list-style-type: none"> • Ensure sediment barriers such as straw bales/sediment fencing are used where there is a potential for run-off.
Vegetative Cover	Loss of vegetative cover leading to soil erosion	<ul style="list-style-type: none"> • Restore cover by means of seeding or hydro-seeding as soon as possible.
Soils: Erosion	Introduction of sediment/ silt to adjacent lands	<ul style="list-style-type: none"> • Restore disturbed soils as soon as possible after construction.
Road Side Ditches	Water quality concerns	<ul style="list-style-type: none"> • Ensure ditches are returned to pre-construction condition as quickly as possible. • Install rock rip rap/straw bale check dams as required.
Spills	Public safety issue	<ul style="list-style-type: none"> • Ensure the Ministry of Environment and Climate Change is notified, as per spill procedure. • Clean up spilled material.
Contaminated Soils	Dealing with contaminated materials Public safety issue	<ul style="list-style-type: none"> • No sites are anticipated as a result of this proposal however should suspect soils be uncovered, work should stop immediately and the Union Gas Environmental Department contacted. • Clean up contaminated material following Company and MOECC procedures.
Cemeteries	Disturbance to unmarked grave sites and disruptive to services.	<ul style="list-style-type: none"> • Confirm location of all cemeteries with Kettle Point/Lambton Shores. • Stop construction if suspect material encountered and immediately notify Environmental Planner. • Suspend construction near cemeteries during services.
Site Restoration	Disturbance to public and private properties	<ul style="list-style-type: none"> • Construction area to be restored as soon as possible upon completion of pipe installation.

Appendix 3

Generic Sediment Control Plan for Watercourse Crossings by Horizontal Directional Drill

Generic Sediment Control Plan – Horizontal Directional Drill

Fisheries and Oceans Canada (DFO) is responsible for protecting fish and fish habitat across Canada. Under the Fisheries Act, no one may carry out a work or undertaking that will cause the harmful alteration, disruption or destruction (HADD) of fish habitat unless it has been authorized by the DFO. By following the conditions and measures set out in the Stream Crossing Review and this Drawing, you will be in compliance with subsection 35(1) of the Fisheries Act.

This plan sets out the measures that will be taken by Union Gas Limited (company) and its contractors in order to avoid negative impacts to fish habitat during horizontal directional drill crossings. The conditions and techniques set out on this plan are to be followed unless approved otherwise by the DFO.

Measures to Protect Fish and Fish Habitat when Horizontal Directional Drilling

The company must use materials, construction practices, mitigation techniques and monitoring of operations of every water crossing in order to prevent an unauthorized HAD or the impairment of water quality. The following requirements apply to any permanent or intermittent waterbody (stream, river, pond) and areas adjacent to it.

- * Design the drill path to an appropriate depth below the watercourse to minimize the risk of frac-out and to a depth to prevent the line from becoming exposed due to natural scouring of the stream bed. Ensure the drill entry and exit points are far enough from the banks of the water course to have minimal impact on these areas.
- * The company will adhere to all permits and approvals of federal and provincial agencies related to watercourse crossings.
- * The company will notify the appropriate federal or provincial agencies related to watercourse crossings.
- * Use existing trails, roads or cut lines wherever possible, as access routes to avoid disturbance to the riparian vegetation.
- * Sediment fence must be installed between the work site and the watercourse. Ensure all fencing is properly keyed into the ground.
- * Prior to removal of the low vegetative cover, effective mitigation techniques for erosion and sediment control must be in place to protect water quality. Limit the areal extent of disturbance to the minimum and within the road or utility right-of-way. Delay grubbing to immediately prior to the crossing operation.
- * Materials removed or stockpiled during construction must be deposited in a manner to ensure sediment does not enter into a waterbody. This material must be protected with appropriate erosion and sediment controls devices (sediment fencing, strawbales).
- * All vehicles, machinery and other construction equipment shall not enter the water. There must be no fording of any waterbody. The company is to adhere to the Generic Sediment Control Plan For Temporary Vehicle Crossings. This plan is endorsed by the DFO.
- * Refuelling and lubrication of equipment will be conducted in areas that will allow any accidental spill of deleterious substance to be disposed of in an approved location before it reaches any waterbody. Appropriate spill prevention kits shall be readily available on site.
- * Monitor the watercourse to observe signs of surface migration (frac-out) of drilling mud during all phases of construction.
- * There are no in-stream timing restrictions on this work.
- * The company will be held responsible for implementation of this plan.

Crossing Procedures

- * Sediment fences are to be established between the entry and exit points and the watercourse (potential for sediment to enter watercourse)
- * At a minimum the entry and exit points must be located as identified on this plan.
- * Mud sump pits are to be excavated at the entry and exit points of the drill to contain drilling fluids to prevent sediment and other deleterious substances from entering the watercourse. If this cannot be achieved, use silt fences or other effective sediment and erosion control measures to prevent drilling mud from entering the watercourse. These pits must be excavated prior to back reaming.
- * All drilling fluids are to be contained during the entire drilling process and promptly removed as sump pits are filled and/or when the drill is completed.
- * All excess material is to be removed from the construction site to an approved location.
- * Monitoring of the watercourse must be completed during all phases of the crossing attempt.

Emergency Frac-out Response and Contingency Planning

- * Keep all material and equipment needed to contain and clean up drilling mud releases on site and readily accessible in the event of a frac-out.
- * The drilling procedure will be closely monitored throughout the crossing attempt to limit the extent of a "fracture" (frac out).
- * If the pilot drill results in a "fracture" (drill fluids enter the stream bed or stream banks), drilling should be stopped immediately and the procedures outlined in the Environmental Compliance section should be followed.
- * Measures must be taken to contain the drilling mud and prevent its further migration into the watercourse. Measures to control fracturing will include, stopping the drill, the use of vacuum trucks, excavation of relief pits (dry land) and any other measure deemed appropriate by the company.
- * Prioritize cleanup activities relative to the risk of potential harm and dispose of the drilling mud in a manner that prevents re-entry into the watercourse.
- * Ensure clean up measures do not result in greater damage to the banks and watercourse than from leaving the drilling mud in place.
- * Once the site has been deemed secure and the risk of drilling mud entering the watercourse has been addressed, the drill shall be pulled back and can be restarted with a new deeper attempt and/or a change to the existing running line, to attempt to avoid the fracturing problem.
- * If subsequent drill attempts result in additional fracturing, then the crossing shall be halted and the Environmental Planning group should be contacted. Additional permits or authorizations to continue the drill using in-stream mitigation or to change the crossing technique, may be required.
- * In the event that the horizontal directional drill cannot be completed a dam and pump or flumed crossing technique will be implemented following the specific Generic Sediment Control Plan endorsed by DFO under the DFO-OGLA AGREEMENT 2008.

Environmental Compliance

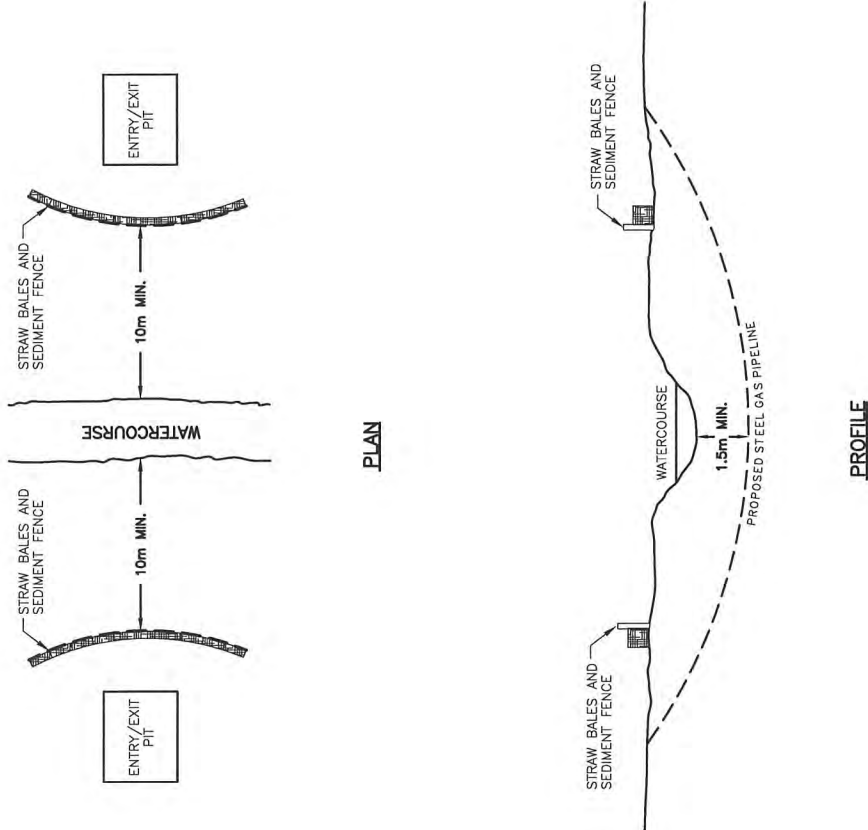
Contractor

- * In the event that drilling fluids enter the watercourse or turbidity is generated by air migration, the Ministry of the Environment (MOE) shall be contacted by the contractor in compliance with their spills policy
- * Such an incident is to be phoned into the MOE Spills Action Centre at 1-800-268-6060 by the contractor. The Spills Action Centre will require the following information:
 - * The nature of the incident (what happened and what materials were involved).
 - * Approximate volume of material involved.
 - * The incident location (lot, concession, township, county and/or city).
 - * Actions that have or will be taken.
 - * The name and telephone number of the person calling.
- * The incident should be monitored:
 - * The date, time and duration of the event should be recorded, as well as the content of the call to the MOE Spills Action Centre.

Company

- * In the event that drilling fluids enter the watercourse or turbidity is generated by air migration, the Department of Fisheries and Oceans or local Conservation Authority (CA) shall be contacted by the Company Inspector. DFO contact information is provided on the Stream Crossing Review and CA contact information can be found on the permit.
- * When this has been completed, Union's Environmental Planning Department or Lands Department staff shall also be notified.
- * All calls identified above are mandatory and are to be completed immediately after the incident has occurred.

Minimum Horizontal Directional Drill Setback and Depth.



NOTES:

- STRAW BALES AND SEDIMENT FENCE TO BE SET UP A MINIMUM OF 10m FROM WATERCOURSE.
- HORIZONTAL DIRECTIONAL DRILL TO BE SET UP BEHIND STRAW BALES AND SEDIMENT FENCE.
- MINIMUM OF 1.5m COVER FROM TOP OF PIPE TO BED OF WATERCOURSE.
- ALL DISTURBED AREAS TO BE RESTORED TO PRE-CONSTRUCTION CONDITIONS OR AS CLOSE AS POSSIBLE.

Restoration

The following conditions should be adhered to for the restoration of the construction site and adjacent lands:

- * Any disturbed areas adjacent to the watercourse will be seeded, covered with erosion control matting or equivalent and restored as close as possible to preconstruction conditions.
- * Vegetation on watercourse banks will either remain in place or will be replaced following construction.
- * All seeding and vegetation replacement will be with native species to Ontario.
- * If post construction monitoring reveals erosion problems, remedial work will be undertaken as quickly as possible.
- * All debris/garbage shall be removed from construction site to an approved location.
- * If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.
- * Maintain effective sediment and erosion control measures until revegetation of disturbed areas is achieved.

Contingency Plan

If, for any reason, the attempt to cross this watercourse by means outlined above is not successful, the Environmental Planner will be contacted to discuss an alternative crossing method. It should be noted that under no circumstances shall an alternative crossing method be attempted for any crossing without prior notification. Any changes to this Stream Crossing Review may require permit amendments or governmental agency approval.

If unforeseen events cause the strategies set out in this plan to be insufficient or inappropriate to meet the objective, the company is expected to respond in a safe and timely manner with all reasonable measures to prevent, counteract or remedy any effects on fish or fish habitat that may result. DFO or CA is to be notified as soon as practical.

Spill reporting procedures established by MOE shall be used to report any unexpected discharge of silt or sediment or other deleterious substance at the water crossing. The spill/incident shall also be reported to the DFO or CA as soon as possible in these circumstances.

If DFO determines that long term damage to fish habitat has occurred due to failure of this plan to control sediment, a restoration plan will be developed by the company, in consultation with and approval from DFO for implementation by the company.

[illegible]

Appendix 4

Photographs



1. Proposed distribution station at Ravenswood Line and Army Camp Road (looking south)



2. Lakeshore Road west of Ipperwash Road (looking east)



3. Lakeshore Road west of Ipperwash Road (looking west)



4. Duffus Drain (Lakeshore Road looking south)



5. Ipperwash Road at Sunset Avenue (looking east)



6. Ipperwash Road at Sunset Avenue (looking west)

Summary of Comments

TO BE FILED WHEN RECEIVED

Kettle Point Lambton Shores Landowner Listing

Legal Description: PT LT 21 CON 10 BOSANQUET AS IN L740835; LAMBTON SHORES	Owner: [REDACTED]	PIN: 43035-0061(LT)	SIZE: 15m x 22m
--	--------------------------	----------------------------	------------------------

UNION GAS LIMITED

MILVERTON PROJECT

Contents

PROJECT SUMMARY	2
MARKET PROFILE	3
PROPOSED FACILITIES.....	5
PROJECT COSTS	6
ECONOMIC FEASIBILITY	6
DESIGN AND CONSTRUCTION	7
ENVIRONMENTAL MATTERS	9
LAND MATTERS.....	11
FIRST NATIONS AND MÉTIS CONSULTATION	11

Schedules

Schedule 1	Map of Proposed Facilities
Schedule 2	Customer Attachment Forecast
Schedule 3	Letter of Support
Schedule 4	Schematic of Proposed Project
Schedule 5	Capital Costs
Schedule 6	Project DCF Analysis
Schedule 7	DCF Analysis & Parameters
Schedule 8	Design and Pipeline Specifications
Schedule 9	Union's Standard Construction Methods
Schedule 10	Proposed Construction Schedule
Schedule 11	Environmental Protection Plan
Schedule 12	OPCC Summary
Schedule 13	Land Requirements Summary

PROJECT SUMMARY

1. Municipal Officials, Residents, and Business Owners in the Township of Perth East which includes the Town of Milverton [“Project Area”], in the County of Perth, have requested natural gas service from Union Gas Limited [“Union”].
2. In order to meet the demands for natural gas in this area, Union is requesting pursuant to Section 90 (1) of the Ontario Energy Board Act, approval from the Ontario Energy Board [“OEB”] for Leave to Construct pipelines in the Township of Perth East [“Project”]. Union is requesting also an order from the OEB pursuant to section 36 (1), as described in earlier sections of this evidence.
3. A map showing the proposed facilities from a starting point on Union’s Goderich system to the town of Milverton can be found at Schedule 1.
4. Additionally, Union is also planning to develop a local distribution network which will service approximately 130 customers in the first year of the Project. These customers are not known at the time of the filing. Detailed maps of the service area will be finalized prior to construction.
5. Union currently holds the Certificate of Public Convenience and Necessity (EB-2003-0055) and Franchise Agreement (RP-2003-0043/EB-2003-0054), for the County of Perth.
6. The route of the Proposed Facilities was selected in order to optimize economic benefits and social features while minimizing environmental impacts.
7. If the Applications are approved, Union forecasts that 526 customers in the Project Area will have natural gas service by year 10 of the Project.
8. The total capital cost of the proposed facilities is approximately \$4,925,000.

9. The Project has a negative net present value ["NPV"] of (\$1,998,000) and a profitability index ["PI"] of 0.57.
10. An Environmental Protection Plan ["EPP"] for the Project has been prepared by Union's Environmental Planning Department. Union's standard construction procedures, combined with the appropriate supplemental mitigation measures recommended in the EPP, will be employed to address environmental and public concerns.
11. Construction of the proposed facilities for the Project is expected to begin in the spring of 2016 and continue through to the fall of 2016.
12. The pipeline and station facilities have been sized to meet the forecast future growth proposed in the Milverton area.

MARKET PROFILE

Community Profile

13. The Project Area includes both the community of Milverton and residents and businesses between Sebringville and Milverton.
14. The community of Milverton is located in south-western Ontario, in the County of Perth, approximately 27 kilometres north of the City of Stratford and 43 kilometres west of Kitchener-Waterloo. According to the 2011 census, Milverton has a population of 1,519.
15. Milverton is primarily residential, retail, industrial manufacturing facility and support industries for the surrounding agricultural community.
16. There are currently a total of 555 existing residential dwellings and 65 commercial establishments in Milverton which could potentially be served with natural gas. According to the approved municipal plan for Milverton, there are 4 approved subdivision plans totalling 278

lots available for residential use and 26 industrial properties zoned for new industrial use.

17. In the Project Area, there are currently a total of 583 existing residential dwellings and 80 commercial establishments which could potentially be served with natural gas.

Residential and Commercial Surveys

18. A telephone survey was completed for the Project Area. The survey informed residents and businesses about the Project, estimates of the cost to convert to natural gas, and information regarding a surcharge to contribute towards the cost of the Project. The survey also requested information pertaining to dwelling characteristics, use of dwelling, current fuel type and interest in converting to natural gas-fuelled appliances.
19. Of the 664 potential residential and commercial customers in the Project Area, 201 have completed the telephone survey, representing a 30% response rate.

Customer Attachment Forecast

20. Union is forecasting a total of 375 existing residential, 100 new residential, 45 existing medium and small commercial, 5 existing large commercial, and 1 existing seasonal customers will be attached by the tenth year of the Project as outlined in the customer attachment forecast in Schedule 2.
21. For the Top 3 box scores (extremely likely, very likely, and likely to convert), the results of the telephone survey described above indicate that 74% of the people surveyed are interested in obtaining natural gas service. The telephone survey provided residents information about the temporary expansion surcharge.
22. Based on experience of attachment rates with past projects, Union has taken a conservative approach and reduced the attachment forecast to 59% (extremely likely, very likely, 50% of

likely) for the existing residential, small commercial, and medium commercial customers.

23. Based on discussions with the Milverton Business Association, Union has assumed 100% of the large commercial and seasonal customers will attach.
24. Union asked participants of the survey, who were interested in converting, the timing of when they would attach, and 99% indicated they would do so in the first three years. Union has taken a conservative approach and have spread the attachments over ten years based upon historical average connection rates for Union's past four large projects.
25. Union has reviewed the approved municipal plan and had discussions with municipal officials related to new residential attachments in the Project Area. According to municipal officials there is activity in three of the four approved subdivisions identified above in the Community of Milverton.
26. Union has received support from the Township of Perth East and Milverton Business Association. Letters of support for the Project are included in Schedule 3.

PROPOSED FACILITIES

27. The pipeline will connect to the Goderich lateral in the village of Sebringville. The NPS 4 steel pipeline will go north within the road allowance of County of Perth Road and Perth East Township Road 130 for approximately 17 kilometres. The pipeline will travel northwest approximately 4 kilometres within the road allowance of County Road 119 and 131 to the Community of Milverton. At the south end of Milverton there will be a Distribution Regulating station installed to reduce the pressure of the pipeline. A schematic drawing showing the Project is provided in Schedule 4.
28. The pipelines identified above have been sized to meet the forecast future growth in the Project Area.

29. From the Distribution station a local distribution network will be constructed to service residents in the area. This network will be based on interest in natural gas service, constructability and the availability of funds.

PROJECT COSTS

30. The total estimated cost for the Proposed Project is approximately \$4,925,000. This cost includes all pipeline costs of \$4,007,000 and the cost of services of \$938,000 for the first 10 years of the Project.
31. Estimates of the capital costs for the construction of the proposed pipeline facilities are provided in Schedule 5. The estimated costs cover all costs related to materials, construction and labour required to construct distribution mains, and regulating stations. This figure also includes estimated land costs and environmental costs.

ECONOMIC FEASIBILITY

32. The Proposed Facilities are required in order to expand natural gas distribution to Milverton community.
33. A standalone Discounted Cash Flow (“DCF”) analysis was completed for the proposed expansion. Union has employed an economic feasibility test consistent with the Board’s recommendations in the E.B.O. 188 Report on Natural Gas System Expansion.
34. The DCF for Milverton community can be found at Schedule 6. This Schedule indicates a Net Present Value (“NPV”) of (\$1,998,000) and Profitability Index (“PI”) of 0.57. The DCF is based on capital of \$4,766,000. Capital used in the DCF is the cost of the design of the minimum sized facilities to support the attachment forecast. The difference in costs between the minimum sized facilities and the proposed system design is approximately \$160,000. The table below illustrates the minimum and proposed capital costs.

DCF Capital (\$000's)

	1	2	3	4	5	6	7	8	9	10
Total										
Pipeline & Station Capital	3,848	3,797	6	6	6	6	6	6	6	6
Service , M&R Installation	919	322	172	72	55	44	54	51	54	50
Total	4,766	4,120	177	78	61	50	59	56	59	56

Proposed Capital (\$000's)

	1	2	3	4	5	6	7	8	9	10
Total										
Pipeline & Station Capital (1)	4,007	3,937	8	8	8	8	8	8	8	8
Service , M&R Installation	919	322	172	72	55	44	54	51	54	50
Total	4,925	4,259	179	80	63	52	61	59	61	58

Notes

1. Refer to Schedule 5

Capital used for economics represents the minimum design to support the attachment forecast.

The proposed capital will allow future growth to the system beyond the forecast.

35. The DCF shows the collection of the Temporary Expansion Surcharge (“TES”) and the Incremental Tax Equivalent (“ITE”) for a period of 4 years. Where the PI of a Community Expansion Project is less than 0.8 the TES and ITE shall have a minimum term of 4 years as described in Exhibit A, Tab 1, Section 4.3.
36. Schedule 7 provides the key inputs, parameters and assumptions used in completing the DCF analysis.

DESIGN AND CONSTRUCTION

Design and Pipe Specifications

37. The design and pipe specifications are outlined in Schedule 8. All the design specifications are in accordance with the *Ontario Regulations 210/01* under the *Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*. This is the regulation governing the installation of pipelines in the Province of Ontario.

38. The Ontario regulations include a classification system on land use and population density to determine the appropriate design factors. A class location unit is defined as the area that extends 200 metres on either side of the centreline of any continuous 1.6 kilometre length of pipeline.
39. Class Location Designations will be in accordance with Table 4.1 of CSA Z662-11.
40. Based on preliminary analysis the existing class location designations along the steel pipeline are Class 1 and 2 and could be as high as 3. The steel pipeline has been designed with a standard wall thickness that exceeds the requirements of *CSA Z662-11*. The proposed steel pipeline will be designed for Class 3 location.
41. The steel pipe will be manufactured by the electric resistance welding or submerged arc weld process in accordance with the *Canadian Standards Association Z245.1-07 Steel Pipe*. The pipe specifications are designed to provide the maximum operating pressure of 3450 kPa. The steel pipeline will be hydrostatically tested for 24 hours at pressures that meet the requirements of the Ontario Regulation.
42. For the steel pipe, the hoop stress at maximum operation pressure, expressed as a percentage of the specified minimum yield strength ["SMYS"], is as follows:

Pipe	Wall Thickness [mm]	Grade [Mpa]	% SMYS
NPS 4	4.8	290	14.2

43. The steel pipeline design is in accordance with the *Technical Safety and Standards Authority Guidelines for locating New Oil & Gas Facilities*. Since the design hoop stress is less than 40% of the Specified Minimum Yield Strength ("SMYS"), the minimum setback distances required by the guidelines do not apply.
44. All polyethylene pipe and fittings will be manufactured and certified in accordance with the *Canadian Standards Association B137.4-09 Polyethylene (PE) Piping systems for Gas Services*.

The pipe specifications are designed to provide the maximum operating pressure of 550 kPa.

The pipeline will be tested in accordance with the requirements of the Ontario Regulation.

45. The minimum depth of cover to the top of the pipe and pipe appurtenances will be in accordance with the requirements of Clause 4.11 of the *CSA Z662-11 for steel piping* and *Clause 12.4.8 of the CSA Z662-11* for polyethylene piping. Additional depth will be provided to accommodate existing or planned underground facilities, or where greater depth of excavation is warranted.

Construction Procedures and Project Schedule

46. The Proposed Facilities will be constructed using Union's standard practices and procedures and will be in compliance with the mitigation measures identified in the Environmental Protection Plan ["EPP"]. Schedule 9 provides a summary of Union's standard construction methods. Union's construction procedures are continually updated and refined to minimize potential impacts to the lands and the public.
47. Material is readily available for the Project and Union foresees no problem in obtaining a contractor to complete the proposed construction. The EPP will be provided to the contractor.
48. Schedule 10 provides the proposed construction schedule for the Project. Construction of the proposed facilities is expected to begin in spring of 2016 and continue through to the fall of 2016.
49. Approvals are pending from the County of Perth, Upper Thames Conservation Authority and the Town of Milverton.

ENVIRONMENTAL MATTERS

50. An EPP for the proposed pipeline was prepared by Union's Environmental Planning Department. The EPP was prepared to meet the intent of the Board's document "*Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario*"

[2011]. A copy of the EPP is provided as Schedule 11.

51. The objectives of the EPP are to:

- a) document existing environmental features;
- b) identify agency, First Nations, Métis of Ontario and public concerns;
- c) identify potential environmental impacts as a result of construction;
- d) present mitigation techniques to minimize environmental impacts; and
- e) provide pipeline contractors and environmental inspectors involved in the construction of the pipeline with general and site-specific guidelines for environmental protection that supplement Union's construction specifications.

52. The EPP was prepared before the scope of the Project was finalized. As such, some areas shown in the EPP may not be included in the Project.

53. All pipelines will be constructed in the manner recommended and described in the Board document *"Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario"*.

54. A copy of the EPP has been submitted to the Ontario Pipeline Coordinating Committee ("OPCC"), local municipalities, government agencies, First Nations and the Métis Nation of Ontario. A summary of comments and Union's response will be provided in Schedule 12 as they are received.

55. There are a number of watercourse crossings associated with this Project and a final count will

be confirmed with the Grand River and Upper Thames River Conservation Authorities. Union will follow all permit conditions from the Regulating Agencies.

56. When the Project is constructed, the most up-to-date construction specifications will be followed.
57. Union will ensure that the recommendations in the EPP, commitments and the conditions of approval are followed. An environmental inspector will be assigned to the Project to ensure that all activities comply with all of the Board's conditions of approval.
58. The results of the EPP indicate that the environmental and socio-economic effects associated with construction of the Project are generally short-term in nature and minimal. There are no significant cumulative effects as a result of this pipeline construction.

LAND MATTERS

59. The proposed pipelines will be located within road allowances.
60. A distribution Station in Milverton will be required. Based on preliminary discussions Union does not anticipate any issues obtaining the necessary land rights required for the station.
61. A table summarizing all the land requirements can be found in Schedule 13.

FIRST NATIONS AND MÉTIS CONSULTATION

62. Union has a long standing practice of consulting with Métis and First Nations, and has programs in place whereby Union works with them to ensure they are aware of Union's projects and have the opportunity to participate in both the planning and construction phases of the Project.
63. Union has an extensive data base and knowledge of First Nations and Métis organizations in Ontario and consults with the Tribal organizations and the data bases of the Ministry of Natural

Resources, Ministry of Aboriginal Affairs and Aboriginal Affairs and Northern Development Canada to ensure consultation is carried out with the most appropriate groups.

64. Union has signed a General Relationship Agreement with the Métis Nation of Ontario which describes Union's commitments to the Métis when planning and constructing pipeline projects.

65. The following First Nations and Métis were notified by letter regarding the Project.

Chief Ava Hill	Six Nations of the Grand First Nations
Lonny Bomberry	Director of Lands Resource and Consultation
Chief Bryan LaForme	Mississaugas of New Credit First Nation
Mark LaForme	Director of Lands Resource and Consultation
Chief Chris Plain	Aamjiwnaang First Nation
Sharilyn Johnston	Environmental Coordinator Aamjiwnaang First Nation
Chief Dan Miskokomon	Walpole Island First Nation
Dean Jacobs	Walpole Island First Nation
Chief Joe Miskokomon	Chippewa of the Thames First Nation
Rolanda Elijah	Chippewa of the Thames First Nation
Chief Louise Hillier	Caldwell First Nation
Aly Alibhai	Director of Lands Resources and Consultation Métis Nation of Ontario

66. Union will continue to meet and consult with the First Nations and the Métis organizations noted above.

67. During construction, Union has inspectors in the field who are available to First Nation's and Métis Nation of Ontario as a primary contact to discuss and review any issues that may arise during construction.

68. When Union completes the necessary archaeological assessments for the Project Union will consult with and provide the result of the surveys to any First Nations or Métis upon their request.

Milverton Expansion Project General Location Map



Milverton Attachment Forecast

Classification	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total	Ultimate Potential	Total Attachments % Potential
Residential Conversion	102	90	34	24	19	23	21	23	20	19	375	638	59%
Residential New	10	10	10	10	10	10	10	10	10	10	100	100	100%
Small Commercial	8	7	3	2	1	2	2	2	2	1	30	50	60%
Medium Commercial	4	3	1	1	1	1	1	1	1	1	15	24	63%
Large Commercial	5	0	0	0	0	0	0	0	0	0	5	5	100%
Seasonal (Grain Dryer)	1	0	0	0	0	0	0	0	0	0	1	1	100%
Total	130	110	48	37	31	36	34	36	33	31	526	818	64%



Dear James Whittaker

Manager, Construction and Growth - London/Sarnia District, Union Gas

We understand that subject to favourable feasibility assessments currently being conducted, Union Gas will be filing a proposal with the Ontario Energy Board in the spring seeking approval to provide service to the community of Milverton, Township of Perth East, County of Perth.

The understanding of the Milverton Business Association is that the Union Gas application will include proposals for specific forms of regulatory flexibility or exemptions from current Ontario Energy Board guidelines that apply to extending natural gas service to new communities.

These exemptions will provide economic development opportunities and cost savings for the members of the MBA.

We are writing this letter to confirm that the MBA has reviewed key concepts that Union Gas expects to include in the filing with the Ontario Energy Board, and that we support those concepts summarized below:

- The application of an additional temporary volumetric rate which would be applied as an additional line item to the bills of customers who connect to the system installed as part of these projects for a period of up to 10 years (approx. \$500 per year for an average residential customer).
- Agreement by the municipality to provide a contribution to construction costs that equates to the value of any incremental property taxes that the new system would generate over the same period as the volumetric rate noted above.
- A reduction in the economic feasibility thresholds that each project must meet before proceeding, to a profitability index below the current minimum of 0.80 in certain situations, conditional on municipal agreement to make contributions as outlined above. And related to this allowing expansion to new communities to proceed without their economic feasibility results being included in portfolio profitability indices in order to create capacity for the incremental capital investment required by the utility.

- Ability of the utility to earn their regulated rate of return on investment for all capital invested beginning in the year following which the investment is made.

We believe that the public benefits of extending natural gas infrastructure to additional communities in Ontario should be a key consideration in addressing Union's proposals. These benefits include the annual energy savings our members would experience, reduced costs for our existing businesses, and remove a local economic barrier for our community.

For these reasons we fully support the concepts that Union Gas will propose in their application.

A handwritten signature in dark ink, appearing to read 'J Matheson', is centered within a light gray rectangular box.

Jeremy Matheson

President

Milverton Business Association



Township of Perth East

*P.O. Box 455, 25 Mill Street East
Milverton, Ontario N0K 1M0*

*Phone- (519) 595-2800
Fax- (519) 595-2801*

Filed: 2015-07-23
EB-2015-0179
Exhibit A
Tab 2
Section B
Schedule 3
Page 3 of 4

June 17, 2015

James Whittaker, P.Eng
Manager, Construction and Growth - London/Sarnia District
Union Gas Limited
109 Commissioners Rd W
London, ON N6A 4P1

Re: Union Gas Proposal – Extension of Service to Milverton

It is the Township of Perth East's understanding that subject to favorable Feasibility Assessments currently being conducted, Union Gas will be filing a proposal with the Ontario Energy Board seeking approval to provide service to Milverton which is located in the Township of Perth East. Our understanding is that the Union Gas application will include proposals for specific forms of regulatory flexibility or exemptions from current Ontario Energy Board guidelines that apply to extending natural gas service to new communities.

The purpose of this letter is to confirm that the Township of Perth East has reviewed key concepts that Union Gas expects to include in the filing with the Ontario Energy Board, and that elected municipal representatives support those concepts, which are summarized below:

- The application of an additional temporary volumetric rate which would be applied by Union Gas as an additional line item to bills of customers who connect to the system installed as part of these projects for a period of up to 10 years, and which amounts to something in the range of \$500 per year for an average residential customer.
- Agreement by the municipality to provide a contribution to construction costs that equates to the value of any incremental property taxes that the new system would generate over the same period as the volumetric rate noted above.
- A reduction in the economic feasibility thresholds that each project must meet before proceeding, to a profitability index below the current minimum of 0.80 in certain situations, conditional on municipal agreement to make contributions as outlined above. And related to this allowing expansion to new communities to proceed without their economic feasibility results being included in portfolio profitability indices in order to create capacity for the incremental capital investment required by the utility
- Ability of the utility to earn their regulated rate of return on investment for all capital invested beginning in the year following which the investment is made.

Our municipal leaders believe that the public benefits of extending natural gas infrastructure to Milverton should be a key consideration in the OEB addressing Union's proposals. These benefits include the annual energy savings our constituents would experience, reduced costs for our existing businesses, and remove a local economic barrier for our community. We are confident that this will enable growth and development within our community.

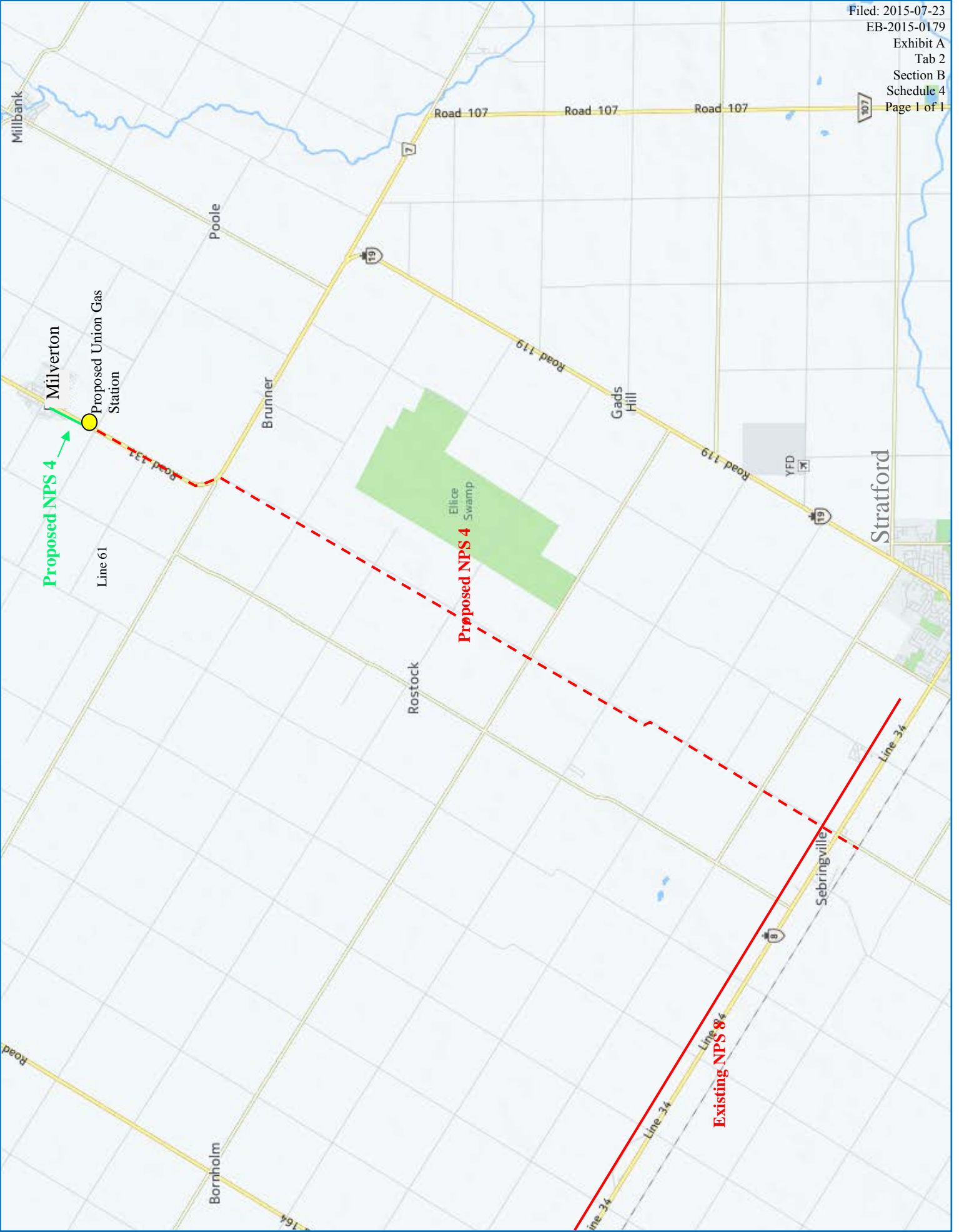
For these reasons we fully support the concepts that Union Gas proposes in their application as outlined above.

Sincerely,



Glenn Schwendinger
Chief Administrative Officer

cc Theresa Campbell, Municipal Clerk



TOTAL ESTIMATED PIPELINE CAPITAL COSTS

MILVERTON EXPANSION PROJECT

Pipeline and Equipment

NPS 4 Steel Pipe, Coated 20500 metres	\$529,775
NPS 4 PE Pipe, 4150 metres	\$62,425
NPS 2 PE Pipe, 13200 metres	\$47,404
1 Station, Valves, Fittings , Regulators and Miscellaneous Material	\$132,910

Sub-Total	\$772,514	
-----------	-----------	--

Total Pipeline and Equipment	\$772,514	\$772,514
-------------------------------------	------------------	------------------

Construction and Labour

Lay 20500 metres of NPS 4 Steel Pipe	\$1,668,188
Lay 4150 metres of NPS 4 PE Pipe	\$314,000
Lay 13200 metres of NPS 2 PE Pipe	\$515,234
Boring , Testing, Slurry Disposal, etc	\$62,872
Fabrication and Distribution Station Installation	\$153,427

Company Labour, X-Ray, Construction Survey, Legal, Mill Inspection and Consultants	\$311,314	
---	-----------	--

Easements, Lands, and Permits	\$20,580	
-------------------------------	----------	--

Total Construction and Labour	\$3,045,615	\$3,045,615
--------------------------------------	--------------------	--------------------

Total Estimated Pipeline Capital Costs	\$3,818,129	\$3,818,129
---	--------------------	--------------------

Escalation	\$	
------------	----	--

Contingencies	\$188,412	
---------------	-----------	--

Interest During Construction	\$	
------------------------------	----	--

Total Estimated Pipeline Capital Costs	\$4,006,541	\$4,006,541
---	--------------------	--------------------

Includes the Estimated Environmental Costs.

Milverton														
Project Year		(\$000's)												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Cash Inflow														
Revenue														
Expenses:														
O & M Expense														
(4)	(12)	(17)	(20)	(23)	(26)	(29)	(32)	(35)	(38)	(40)	(41)	(42)	(43)	
(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	
37	60	52	47	42	37	33	29	24	20	17	15	13	11	
126	287	336	362	-	-	-	-	-	-	-	-	-	-	
41	41	41	41	-	-	-	-	-	-	-	-	-	-	
187	408	470	500	101	104	107	111	115	118	118	114	111	108	
Net Cash Inflow														
Cash Outflow														
Incremental Capital														
4,120	177	78	61	50	59	56	59	56	51	-	-	-	-	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4,120	177	78	61	50	59	57	59	56	51	0	0	0	0	
Cumulative Net Present Value														
Cash Inflow														
183	561	976	1,396	1,477	1,556	1,633	1,710	1,785	1,858	1,928	1,992	2,052	2,107	
4,120	4,288	4,359	4,411	4,452	4,498	4,540	4,582	4,620	4,652	4,653	4,653	4,653	4,653	
(3,937)	(3,727)	(3,383)	(3,015)	(2,975)	(2,943)	(2,907)	(2,872)	(2,835)	(2,794)	(2,724)	(2,660)	(2,601)	(2,546)	
Project NPV														
-1,998														
Profitability Index														
By Year PI														
0.04	0.13	0.22	0.32	0.33	0.35	0.36	0.37	0.39	0.40	0.41	0.43	0.44	0.45	
Project PI														
0.57														

Milverton																	
<u>Project Year</u>	<u>(\$'000's)</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>	<u>25</u>	<u>26</u>	<u>27</u>	<u>28</u>		
<u>Cash Inflow</u>																	
Revenue		181	181	181	181	181	181	160	155	154	152	151	150	149	147		
Expenses:																	
O & M Expense		(44)	(45)	(46)	(47)	(49)	(50)	(45)	(41)	(41)	(41)	(41)	(42)	(42)	(42)		
Municipal Tax		(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)	(41)		
Income Tax		9	7	5	4	2	1	4	3	2	1	0	(0)	(1)	(2)		
Temporary Expansion Surcharge (TES)		-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Incremental Tax Equivalent (ITE)		-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Net Cash Inflow		105	102	99	97	94	92	77	76	74	71	69	67	64	62		
<u>Cash Outflow</u>																	
Incremental Capital		-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Change in Working Capital		0	0	0	0	0	0	(0)	(0)	(0)	0	0	0	0	0		
Cash Outflow		0	0	0	0	0	0	(0)	(0)	(0)	0	0	0	0	0		
<u>Cumulative Net Present Value</u>																	
Cash Inflow		2,158	2,205	2,249	2,289	2,327	2,361	2,389	2,415	2,439	2,462	2,482	2,501	2,518	2,534		
Cash Outflow		4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653	4,653		
NPV By Year		(2,495)	(2,448)	(2,404)	(2,364)	(2,326)	(2,291)	(2,263)	(2,237)	(2,213)	(2,191)	(2,171)	(2,152)	(2,135)	(2,119)		
<u>Project NPV</u>																	
<u>Profitability Index</u>																	
By Year PI		0.46	0.47	0.48	0.49	0.50	0.51	0.51	0.52	0.52	0.53	0.53	0.54	0.54	0.54		
Project PI																	

Milverton
(Project Specific DCF Analysis)
Stage 1 DCF - Listing of Key Input
Parameters, Values and Assumptions
(\$000'S)

Discounting Assumptions

Project Time Horizon

40 years commencing at facilities in-service date of
01 Sep 16

Discount Rate

Incremental after-tax weighted average
cost of capital of 5.10%

**Key DCF Input Parameters,
Values and Assumptions**

Net Cash Inflow:

Incremental Distribution Revenue:

General Service rates

Temporary Expansion Surcharge (TES)

Incremental Tax Equivalent (ITE)

Term of TES and ITE

Approved per EB-2014-0356 Effective January 1, 2015
\$0.23 / M3
Estimated year 1 property tax
4 years

Operating and Maintenance Expense

Estimated incremental cost

Incremental Tax Expenses:

Municipal Tax

Income Tax Rate

CCA Rates:

Eligible Capital Expenditure (ECE)

Class 51 (Distribution Mains)

Class 51 (Distribution Services)

Class 51 (Measuring & Regulating Equipment)

Estimated incremental cost
26.5%

7%

6%

6%

6%

Cash Outflow:

Incremental Capital Costs Attributed

Refer to Schedule 5

Change in Working Capital

5.0513% applied to O&M

MILVERTON DESIGN AND PIPE SPECIFICATIONS

STEEL AND POLYETHYLENE PIPING

Steel Design Specifications

Design Factor	- 0.8
Design Class Location	- 3
Location Factor (General)	- 0.700
Location Factor (Road)	- 0.625
Location Factor (Rail)	- 0.625
Maximum Operating Pressure	- 3450 kPa
Test Medium	- Air , Nitrogen, or Water
Minimum Test Pressure	- 4830 kPa
Minimum Depth of Cover (General)	- 0.6 m
Minimum Depth of Cover (Road Crossings)	- 0.6 m
Minimum Depth of Cover (Water Crossings)	- 1.2 m
Minimum Depth of Cover (Rail Crossings)	- 2.0 m

Steel Pipe Specifications

Size	- NPS 4
Outside Diameter	- 114.3 mm
Wall Thickness	- 4.8 mm
Grade	- 290 MPa
Type	- Electric Resistance Weld or Submerged Arc Weld
Description	- C.S.A. Standard Z245.1-07
Category	- Cat I, M5C
Coating	- Yellow Jacket, Dual Layer FBE
%SMYS	- 14.2%

Polyethylene Pipe Design Specifications

Design Factor	- 0.40
Maximum Operating Pressure	- 550 kPa
Test Medium	- Air , Nitrogen, or Water
Minimum Test Pressure	- 770 kPa

Minimum Depth of Cover (General)	-	0.6 m
Minimum Depth of Cover (Road Crossings)	-	0.6 m
Minimum Depth of Cover (Water Crossings)	-	1.2 m

Polyethylene Pipe Specifications

Size	-	NPS 4
SDR	-	11
Description	-	C.S.A. Standard B137.4-09

Size	-	NPS 2
SDR	-	11
Description	-	C.S.A. Standard B137.4-09

GENERAL TECHNIQUES AND METHODS OF CONSTRUCTION

1. Union Gas Limited (“Union”) will provide its own inspection staff to enforce Union’s construction specifications and *Ontario Regulation 210/01 under the Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*.
2. Pipeline construction is divided into several crews that create a mobile assembly line. Each crew performs a different function, with a finished product left behind when the last crew has completed its work.
3. Union’s contract specifications require the contractor to erect safety barricades, fences, signs or flashers, or to use flag persons as may be appropriate, around any excavation across or along a road.
4. It is Union’s policy to restore the areas affected by the construction of the pipeline to “as close to original condition” as possible. As a guide to show the “original condition” of the area, photos and/or a video will be taken before any work commences. When the clean up is completed, the approval of the landowner or appropriate government authority is obtained.
5. Construction of the pipeline includes the following activities:

Locating Running Line

6. Union establishes the location where the pipeline is to be installed (“the running line”). For pipelines within road allowances, the adjacent property lines are identified and the running line is set at a specified distance from the property line.

Stringing

7. The pipe is strung adjacent to the running line. The joints of pipe are laid end-to-end on supports that keep the pipe off the ground to prevent damage to the pipe coating.

Welding

8. The pipe is welded/fused into manageable lengths. The welds in steel pipe are radiographically inspected, if required, and the welds are coated.

Burying

9. Pipe may be buried using either the trench method or the trenchless method. All utilities that will be crossed or paralleled by the pipeline are located by the appropriate utility prior to installing the pipeline. Prior to trenching, all such utilities will be hand-located or hydro vacuumed.

Trench Method: Trenching is done by using a trenching machine or hoe excavator depending upon the ground conditions. Provisions are made to allow residents access to their property, as required. All drainage tiles that are cut during the trench excavation are flagged to signify that a repair is required. Next, the pipe is lowered into the trench. For steel pipe, the pipe coating is tested using a high voltage electrical tester as the pipe is lowered into the trench. All defects in the coating are repaired before the pipe is lowered in. Next, if the soil that was excavated from the trench is suitable for backfill, it is backfilled. If the soil is not suitable for backfill (such as rock), it is hauled away and the trench is backfilled with suitable material such as sand. After the trench is backfilled, drainage tile is repaired.

Trenchless Method: Trenchless methods are alternate methods used to install pipelines under railways, roads, sidewalks, trees and lawns. There are two trenchless methods that could be used for the proposed pipeline, depending on the soil conditions, and the length and size of the installation. These methods are boring (auguring) and directional drilling.

Tie-Ins

10. The sections of pipelines that have been buried using either the trench or trenchless method are joined together (tied-in).

Cleaning and Testing

11. To complete the construction, the pipeline is cleaned, tested in accordance with Union's specifications.

Restoration

12. The final activity is the restoration. The work area is leveled, the sod is replaced in lawn areas and other grassed areas are re-seeded. Where required, concrete, asphalt and gravel are replaced to return the areas to as close to the original conditions as possible.

Milverton Expansion Pipeline Construction Schedule

Task Name	2015												2016												2017		
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
Environmental Assessments and Approvals																											
Engineering																											
Pre-Construction Survey																											
Material Acquisition																											
File Application																											
OEB Approval																											
Construction Survey																											
Construction and Testing																											
Clean-Up																											
In-Service																											

MILVERTON NATURAL GAS PIPELINE PROJECT

ENVIRONMENTAL PROTECTION PLAN

**Prepared By: Union Gas Limited
Environmental Planning
May 2015**

TABLE OF CONTENTS

Milverton Natural Gas Pipeline Project Environmental Protection Plan

		<u>Page No.</u>
1.0	Introduction	1
2.0	Project Background	2
3.0	Planning Process.....	3
	3.1 Key Activities	3
4.0	Consultation.....	4
5.0	Routing	4
	5.1 Routing Selection	4
6.0	Construction, Operation and Maintenance	5
	6.1 General Construction Practices	5
	6.2 Operation and Maintenance Practices	6
7.0	Potential Impacts and Mitigation.....	7
	7.1 General Environmental Features	7
	7.2 Mitigation Summary.....	9
8.0	Cumulative Impacts.....	9
9.0	Summary and Recommendations	10

Appendices

Appendix 1	Project Location Maps
Appendix 2	Consultation Material
Appendix 3	Pipeline Construction - Mitigation Summary
Appendix 4	Generic Sediment Control Plan for Watercourse Crossings by Horizontal Directional Drill
Appendix 5	Photographs

1.0 INTRODUCTION

Union Gas has been bringing clean, reliable and affordable natural gas service for more than a century to over 400 communities across Ontario and as part of its Community Expansion Program, is proposing to bring natural gas service to the Community of Milverton.

This Environmental Protection Plan (EPP) has been prepared to document a plan for the protection of the environment during construction of a natural gas pipeline system by Union Gas Limited (Union), to provide natural gas service to the community of Milverton within the Township of Perth East, County of Perth.

Specifically this report will:

- Describe the proposed work necessary for the Project;
- 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 public consultation opportunities.

Milverton, ON is located on Perth Road 131, 27 kilometres North of Stratford Ontario within the Township of Perth East, County of Perth. Mapping of the project can be found in Appendix 1.

The project will include the construction of approximately 20 km of NPS 4" steel pipe originating from Sebringville, Ontario traveling NE along Perth Rd 130 / East Perth Rd 130, W along Perth Rd 119 and NE on Perth Rd 131 to the proposed Milverton Distribution Regulation Station in the vicinity of Perth Rd 131 and Line 61. An NPS 2 and 4" polyethylene system will be installed within portions of Milverton originating from the distribution regulation station. The construction of the distribution regulation station and polyethylene system will be completed within the same year the NPS 4" steel pipeline is installed.

The EPP defines the environmental features potentially affected by the proposed pipeline and documents the various environmental protection measures that will be implemented by Union during pipeline construction to reduce the effect on these features.

2.0 PROJECT BACKGROUND

Milverton is a small community within the Township of Perth East, located approximately 27 km North of Stratford ON. Milverton has a population of 1,519 within an urban area of 1.564 km² (Canada Census, 2011). The community is primarily residential, retail, industrial manufacturing facility and support industries for the surrounding agricultural community.

Surrounding land use is dominated by active agricultural operations. Significant environmental features within the vicinity of the Milverton Natural Gas Expansion Project include Black Creek within the Grand River watershed (Black Creek N), Smith Creek, Ellice Swamp and Black Creek within the Thames River watershed (Black Creek S). Black Creek N and Smith Creek are located in the Grand River watershed and drain to the Nith River, which is located approximately 8km East of Milverton. The Ellice Swamp is located approximately 1.5 km east of the proposed Perth Rd 130 Running Line. The swamp is the largest wetland within the Upper Thames Valley drainage area covering an estimated 856 hectares and is a Class 2 Provincially Significant Wetland (PSW).

As part of the Community Expansion Program Union is working towards bringing natural gas to the community of Milverton and to the residences and businesses along the route. Union is committed to protecting the environment throughout all stages of this project. Union has retained Neegan Burnside Consulting to complete an Environmental Screening Report to identify environmentally sensitive features and recommend appropriate mitigation measures to limit potential impacts to the identified features.

Union is committed to working with the Township of Perth East, Township of Perth South, County of Perth, the Community of Milverton, Ministry of Natural Resources and Forestry

Milverton Natural Gas Pipeline Project
 Environmental Protection Plan

(MNR), Ministry of Tourism, Culture and Sport (MTCS), Conservation Authorities, First Nations and Métis Nation of Ontario, and any other party that may have an interest in the project in order to ensure environmental protection and to secure all necessary permits or approvals.

An Archaeological Review of the route will be completed prior to construction in accordance with the MTCS guidelines and a review for any species of concern will be conducted.

Once all approvals have been received for the Project, Union or its Agent will contact all people who will be directly affected by pipeline construction. If landowners have site specific concerns, Union or its Agent will meet with them to discuss details relating to construction. A Union supervisor or its Agent will be on site at all times during construction to deal with any questions that may arise.

Once the pipeline is in operation, Union will initiate an ongoing maintenance program to ensure the integrity of the pipeline.

3.0 PLANNING PROCESS

3.1 Key Activities

The following is a summary of the key activities for the development of the Milverton Expansion Project.

Project Initiation	Spring, 2015
Environmental Background Information Collection	May, 2015
Finalize Environmental Protection Plan	May, 2015
Construction	As early as Fall 2015/Spring 2016
Pipeline in Service	Fall 2015 / Fall 2016
Post Construction Monitoring	Spring 2016 / Spring 2017

4.0 CONSULTATION

Consultation for the project will include the following:

The public has been informed of the potential to receive natural gas service by telephone surveys completed by Forum Research on behalf of Union over the period of April 15 to 30, 2015 to households and businesses in the project area. Additionally, notice of the telephone survey was posted on the Township of Perth East website on April 15, 2015 (<http://www.pertheast.ca>). The purpose of the survey was to notify residents that natural gas service may be coming to their community, inform them of the approximate costs of converting to natural gas and to determine their interest in obtaining natural gas service provided they pay a surcharge.

5.0 ROUTING

5.1 Route Selection

In determining the route for the pipeline, Union's District Office looked for a direct route that offered limited socioeconomic and environmental impacts. The majority of the NPS 4 steel pipeline is located along Perth Rd 130 / East Perth Rd 130 and provides a direct route between the tie in location in Sebringville and Perth Rd 131. As a tertiary road using Perth Rd 130 / East Perth Rd 130 reduces potential socioeconomic impacts relative to other potential routes. Potential environmental impacts and disturbance are anticipated to be limited by locating the proposed pipeline within existing road allowances, additionally; any environmentally sensitive features (woodlots, watercourses and wetlands) will be avoided by the use of horizontal directional drilling.

Please see Appendix 1 for the preferred running line and proposed distribution network, photos of the proposed running line are presented in Appendix 5.

Milverton Natural Gas Pipeline Project
Environmental Protection Plan

6.0 CONSTRUCTION, OPERATION AND MAINTENANCE

6.1 General Construction Practices

Clearing and Grading

This prepares the right-of-way to allow the construction of the pipeline. If required, brush, trees and grass are cut or removed and the ground levelled.

Stringing

The pipe is strung next to the proposed pipeline location. The sections of pipe are laid end to end and set on supports that keep the pipe off the ground and prevent damage to the coating.

Trenching

To install the pipeline a trench will be dug. The trench is usually constructed using an excavator. The width of the trench is approximately 0.5 m and the depth will be a minimum of 0.8 m.

The excavator will dig the trench and place the spoil in a pile beside the trench. Once the trench is excavated, the pipeline will be installed and if the spoil is suitable, it will be placed back in the trench. Any unsuitable spoil will be removed from the site and disposed of in an appropriate manner.

Trenchless Installations

Trenchless installation of the pipeline will be used to install sections of the line in environmental or cultural sensitive areas (watercourses, woodlots or cultural heritage sites), road crossings, rail crossings and for portions of the distribution network within Milverton.

The trenchless installations will be completed using horizontal directional drilling (HDD) or boring.

Road Crossings

It is proposed that all paved road crossings will be drilled. The procedure of drilling consists drilling a hole under the roadway, and pulling the pipeline back through the newly created hole. To set the drill in place, sending and receiving pits or will be dug on either side of the road. The length of the crossing and the size of the pipe determine the size of the drilling equipment and sending and receiving pits.

In the event that drilling is not possible to bore the crossings, they will be open cut after discussions with the local roads authority. The public will be notified of any road closures. Union or its Agent will attempt to maintain one lane of traffic at all times.

Cleaning and Testing

To complete construction, the pipeline is cleaned and pressure tested in accordance with the Energy Act.

Restoration

It is Union's policy to restore the affected areas to "as close to original" condition as practicable. To ensure the quality of the restoration, pictures of the construction area will be taken before the work commences.

6.2 Operation and Maintenance Practices

Like any system, once the pipeline system is installed it has to be maintained and serviced on a regular basis. The following paragraphs will describe the most common work to be performed by Union personnel after the gas main has been installed.

Locates

Union provides a free locate service to any person or business who may be working near a pipeline. The pipeline locator is comprised of two parts, a transmitter and a receiver. To perform a locate, the transmitter is connected to the gas facility and sends a small current through the facility, which is picked up by the receiver. The location of the pipeline is then marked using stakes or yellow paint. No excavation is required.

Leak Surveys

To ensure that there are no leaks in the system, a company representative or agent will "leak survey" the pipeline. The leak surveyor will walk along the gas main and carry a small machine that can detect natural gas. No excavation is required to complete the leak survey. However, if leaks are detected, excavations will be required to repair the pipeline.

Milverton Natural Gas Pipeline Project
Environmental Protection Plan

7.0 POTENTIAL IMPACTS AND MITIGATION

7.1 General Environmental Features

Watercourse Crossings

It will be necessary to cross a number of watercourses as part of the project. The exact number of crossings will depend on which side of the road allowance the line will run, which will be determined during detailed design.

All watercourses will be crossed using the HDD drilling method and will be completed as per the Union Gas Limited and Fisheries and Oceans Canada – Ontario Great Lakes Area Agreement (DFO-OGLA/UGL AGREEMENT 2008). The crossing plans for HDD can be found in Appendix 4.

There are no in-stream timing windows associated with HDD crossings and as according to the Agreement, there are no concerns with Species at Risk when watercourses are installed using the HDD method.

By drilling all watercourses, Union does not anticipate any impacts to watercourses.

Union will adhere to its agreement with the Department of Fisheries and Oceans (DFO) and will acquire any necessary watercourse crossing permits from the MNRF and Conservation Authorities.

Wetland Areas

There is one wetland area adjacent to the preferred route, a swamp located in the south-east corner of East Perth Rd 130 and Line 52. Depending on the final alignment, and more specifically the side of road that the pipeline will be installed on, will determine if construction could impact this wetland area.

Union does not anticipate any impact to the wetland as a result of construction as the area will be installed by HDD.

Tree Clearing

Tree clearing is not anticipated to occur as part of the project.

Should tree clearing become necessary, it will be restricted from occurring between April 1 to August 31 in accordance with the Migratory Bird Convention Act and Migratory Bird Regulations, to avoid bird nests and eggs. If project scheduling requires the removal of trees or shrubs during the nesting period, a qualified ornithologist will be required to assess the area of removal for evidence of nesting activity prior to removal to avoid any potential loss of active nests.

Cultural Heritage Resources

Union will retain the services of a licensed archaeological consultant to initiate a Stage I and Stage II Archaeological Assessment (as required).

The survey will take place prior to construction in accordance with the MTCS guidelines to identify known or potential archaeological planning constraints within the project area. The survey will serve to confirm the presence of significant archaeological resources subject to potential impacts from the proposed Project activities.

If deeply buried cultural remains are encountered during construction, all activities will be suspended and the archaeological consultant as well as the MTCS will be contacted to determine the appropriate course of action.

With respect to cultural heritage landscapes and built heritage resources, the running lines will be reviewed by a Heritage Specialist. Union will follow the recommendations of the Heritage Specialist. No impacts are anticipated to archaeological resources, built heritage resources or cultural heritage landscapes as the pipeline will be buried within the disturbed portion of the road allowances of Perth Rd 130 / East Perth Rd 130, Perth Rd 119 and Perth Rd 131.

Water Wells

A hydrogeologist will review the area before construction. Based on this pre-construction assessment, a water well monitoring program will be implemented in areas where the hydrogeologist believes that pipeline construction may affect water wells. The hydrogeologist will also be available during construction in the event that there are complaints regarding water wells.

Species at Risk

Union has retained the services of Neegan Burnside Consulting to review the running line for potential species at risk and determine if any species will be impacted by construction activities. If species of risk are identified, Union will work with the consultant and the appropriate governing agency to develop an appropriate mitigation plan.

Mitigation could include avoiding certain areas at sensitive times, directional drilling sensitive areas, or any measure that helps reduce potential impacts. Impacts to sensitive species is anticipated to be minor in nature as the pipeline will be located within the disturbed portion of the road allowance and that many features will be drilled.

7.2 Mitigation Summary

Table 1 located in Appendix 3 provides a general summary of the potential impacts, as well as the proposed mitigation measures that will be implemented during construction to minimize impacts on the environment. These measures will be implemented as well as the specific measures identified under section 7.1.

8.0 CUMULATIVE IMPACTS

The following section considers the cumulative effects of construction on the lands due to the project. The definition of cumulative effects used in this report is: “changes to the environment that are likely to result from a particular project in combination with other projects or activities that have been or will be carried out”.

Milverton Natural Gas Pipeline Project Environmental Protection Plan

It is expected that construction of the natural gas pipeline system will result in both minor positive and negative cumulative effects. There may be cumulative impacts between this pipeline and other projects in the area, although at this time Union is unaware of any projects that would interact with this proposal.

Additional noise, dust and traffic could be an issue should construction occur concurrently however, the benefits of having these facilities will, in the long term, be a positive impact. It is not expected that any threshold or triggers will be exceeded since the construction of this pipeline is generally minor in nature and takes place in a previously disturbed area. Indirect benefits that are expected include increased development in the area with the availability of natural gas.

Constructing natural gas pipelines within road allowances that have been previously disturbed will focus, if not entirely limit, cumulative effects to a corridor planned and designated for infrastructure projects.

9.0 SUMMARY AND RECOMMENDATIONS

This Environmental Protection Plan describes a strategy for the protection of the Environment during the construction of a natural gas pipeline system to service Milverton, Ontario. The plan has been developed by noting the environmental features in the area and the potential impacts of construction. The plan recommends a number of measures to reduce the impacts of the development.

It is recommended that the pipeline be monitored the year after construction to ensure that restoration measures were effective. If additional restoration measures are required, they should be completed as soon as possible. It is also recommended that landowners and tenants have access to Union Gas personnel or its Agent in order to address any concerns that may arise during construction.

With the implementation of the recommended mitigation measures, and ongoing landowner and agency communication, the Milverton Natural Gas Pipeline Project is not anticipated to have any significant adverse environmental or socio-economic effects.

Appendix 1

Project Location Maps

Milverton Natural Gas Pipeline Project

Filed: 2015-07-23

EB-2015-0179

Exhibit A

Tab 2

Section B

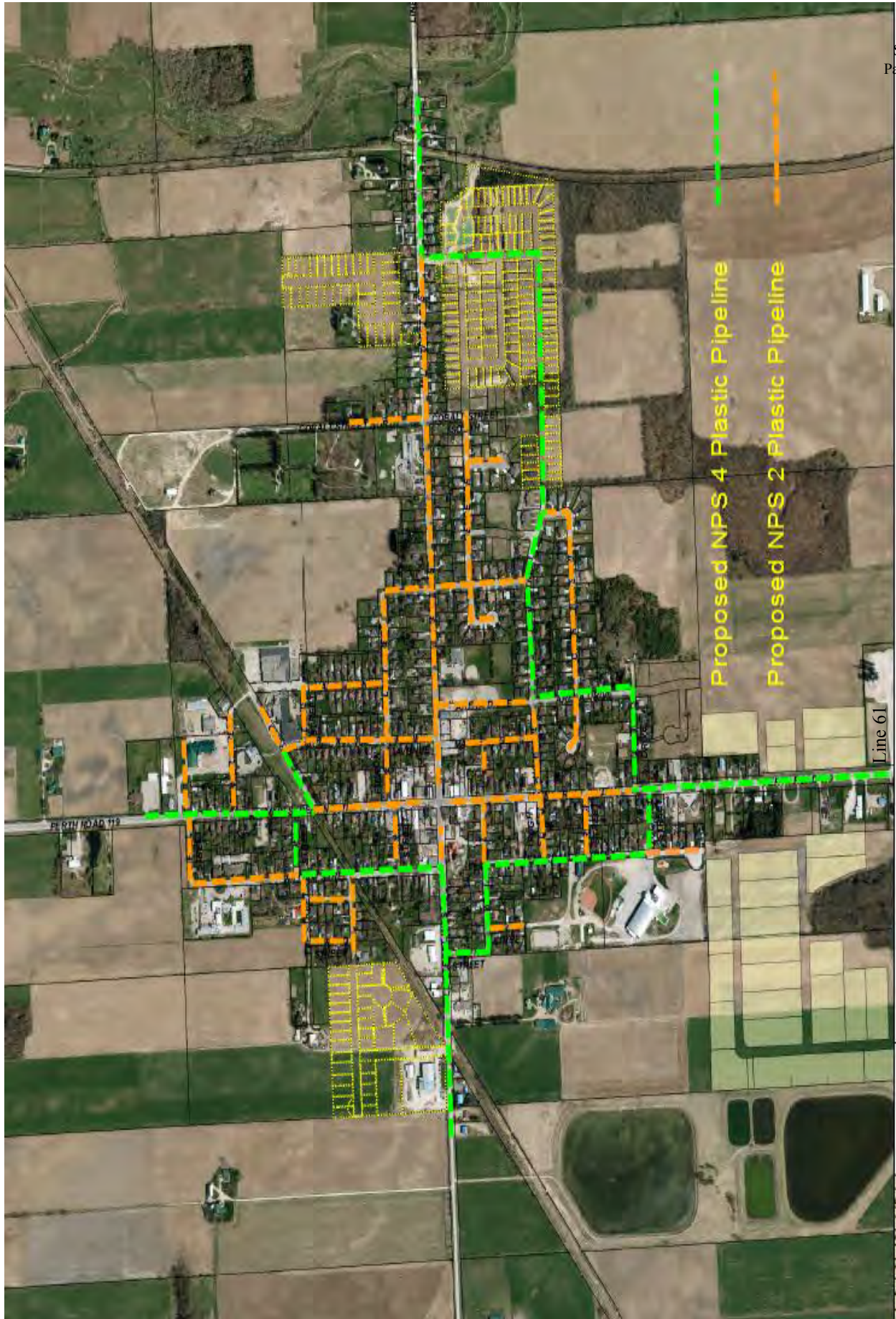
Schedule 11

Page 14 of 26





Pipeline Location - Town of Milverton



Appendix 2

Consultation Materials



April 15th, 2015

Natural Gas Feasibility Assessment for Milverton – Telephone Survey

Over the past few years Union Gas and the Township of Perth East have been reviewing the feasibility of constructing a pipeline to bring natural gas service to Milverton.

The Township of Perth East remains one of the communities in southwestern Ontario that is not serviced by natural gas. As a result, energy costs for citizens and business present a considerable financial burden and the availability of natural gas would provide many residents and businesses with a lower-cost energy alternative.

The Council of the Township of Perth East endorses the project however it does not have the financial capacity to cover the shortfall between the projected project costs and future revenues the project would generate. Union Gas has developed a "rate rider" that would provide an easy means for households and business converting to natural gas to contribute to infrastructure costs while receiving the benefits of natural gas service. The rate rider or capital surcharge would apply for a period of time and would depend on your natural gas usage. This is the same approach used to finance upgrades and extensions to water and wastewater systems.

We are writing this letter to encourage the citizens of Milverton to participate in an upcoming telephone survey. The goal of the survey is to get a good representation of the community and measure the support for the rate rider proposal. Union Gas has indicated that if they are able to demonstrate that there is community support for the rate rider, there is a much higher likelihood of the Ontario Energy Board granting approval.

Over the April 15-30th period, you may be contacted by Forum Research on behalf of Union Gas (may display as 855-561-3603, which is the number for Access Research, the data collection group for Forum Research) to complete a short survey. The survey will take approximately 5-8 minutes. Forum Research will contact many property owners but will not be able to reach everyone.

Thank you in advance for your participation. If you have questions regarding the survey please contact:

For Union Gas

James Whittaker,
Manager Construction &
Growth
jwhittaker@uniongas.com
(519) 667-4142

For the Township of Perth East

Glenn Schwendinger,
Chief Administrative Officer
gschwendinger@pertheast.ca
519-595-2800 ext 232

Alternate for the Township
of Perth East

Kristin Sainsbury, Economic
Development Coordinator
ksainsbury@perthcounty.ca
519-301-1962

Appendix 3

Table 1

Pipeline Construction – Mitigation Summary

**TABLE 1: MITIGATION SUMMARY
PIPELINE CONSTRUCTION**

Issue	Potential Impact	Proposed Mitigation
Paved Driveways and Roadways	Disruption to local traffic, landowners and tenants	<ul style="list-style-type: none"> • All paved roadways and driveways to be bored if practical. • If it is not possible to bore driveways and roads, steel plates will be on site to provide access to landowners and tenants. The Company will attempt to keep one lane of traffic open if possible. Traffic controls will be implemented as required. • Driveways will be repaired as soon as possible. • For driveways that require cutting, the excavation is to be filled with sand and granular material and compacted.
Gravel Driveways and Roadways	Disruption to landowners and tenants	<ul style="list-style-type: none"> • Roadways and driveways will be open cut. • Maintain one lane of traffic if possible. Implement traffic controls as required. • Steel plates will be kept on site to provide access to landowners and tenants. • Driveways will be repaired as soon as possible.
Traffic	Disruption to local citizens	<ul style="list-style-type: none"> • At least one lane of traffic will be maintained at all times. • Flag persons and warning devices will be used to notify traffic of the construction zone in accordance with Ministry of Transportation standards.
Public Safety	Public safety concerns	<ul style="list-style-type: none"> • Company inspectors to ensure public safety on construction site. • Ensure proper signage and flag persons if required.
Commercial/Retail Businesses and Recreational Areas	Disruption to businesses	<ul style="list-style-type: none"> • Ensure access at all times. • Restore area as soon as possible after construction. • Schedule construction with owners or managers, where necessary.
Construction Noise	Disturbance to landowners and tenants	<ul style="list-style-type: none"> • Construction to be carried out during daylight hours whenever possible. • Ensure equipment is properly muffled.
Nuisance Dust	Disruption to landowners and tenants.	<ul style="list-style-type: none"> • Control dust as required.
Construction Equipment	Disruption to landowners and tenants	<ul style="list-style-type: none"> • Equipment will be stored off road shoulders when not in use.
Landowner Concerns	Disruption to landowners and tenants	<ul style="list-style-type: none"> • The Company to provide landowners and tenants with the telephone numbers of supervisory personnel.
Fences	Disruption to landowners and tenants. Loss of control of animals inside fenced areas.	<ul style="list-style-type: none"> • Landowners and tenants will be contacted before any fences are disturbed. • Temporary fencing will be erected if requested by landowner or tenant. • Fences will be replaced as soon as possible.
Front Yards	Disruption to landowners and tenants.	<ul style="list-style-type: none"> • Landowners and tenants will be notified prior to construction. • Restore lawns and yards to original condition

TABLE 1: MITIGATION SUMMARY (Continued)

Issue	Potential Impact	Proposed Mitigation
Mailboxes	Disruption to Landowners	<ul style="list-style-type: none"> • Notify landowners prior to construction. • Restore as soon as possible. • Provide temporary alternative if necessary.
Underground Utilities	Disruption of services	<ul style="list-style-type: none"> • Obtain "locates" from all utilities. • If utilities are damaged, repair as soon as possible.
Archaeology	Disturbance of heritage resources	<ul style="list-style-type: none"> • An archaeological assessment will be completed prior to construction • Stop construction if artifacts are encountered. • Notify Ontario Ministry of Tourism, Culture and Sport.
Water Wells	Disruption to water supply	<ul style="list-style-type: none"> • If water quality/quantity problems occur as a result of construction activities, the Company will supply potable water until the situation has been corrected. • Conduct hydrogeology investigation and monitor wells as required.
Trees	Damage to Trees Disturbance to wildlife	<ul style="list-style-type: none"> • No tree removal is anticipate • If necessary to remove trees, alter alignment to avoid trees if possible. • Pipeline to be located one metre from base of tree if possible. • Trees to be removed outside of avian nesting window • Discuss restoration plans with landowner.
Watercourse Crossings	Water quality concerns	<ul style="list-style-type: none"> • Union will comply with all permit conditions. • Union will adhere to all Company specifications and Department of Fisheries and Oceans endorsed Generic Sediment Control plans for watercourse crossings.
Natural Areas	Sedimentation run-off	<ul style="list-style-type: none"> • Ensure sediment barriers such as straw bales/sediment fencing, filter socks are used where there is a potential for run-off.
Vegetative Cover	Loss of vegetative cover leading to soil erosion	<ul style="list-style-type: none"> • Restore cover by means of seeding or hydro-seeding as soon as possible.
Soils: Erosion	Introduction of sediment/ silt to adjacent lands	<ul style="list-style-type: none"> • Restore disturbed soils as soon as possible after construction.
Road Side Ditches	Water quality concerns	<ul style="list-style-type: none"> • Ensure ditches are returned to pre-construction condition as quickly as possible. • Install rock rip rap/straw bale check dams as required.
Spills	Public safety issue	<ul style="list-style-type: none"> • Ensure the Ministry of Environment and Climate Change is notified, as per spill procedure. • Clean up spilled material.
Contaminated Soils	Dealing with contaminated materials Public safety issue	<ul style="list-style-type: none"> • No sites are anticipated as a result of this proposal however should suspect soils be uncovered, work should stop immediately and the Union Gas Environmental Department contacted. • Clean up contaminated material following Company and MOECC procedures.
Cemeteries	Disturbance to unmarked grave sites and disruptive to services.	<ul style="list-style-type: none"> • Confirm location of all cemeteries with the Cemetery Board. • Stop construction if suspect material encountered and immediately notify Environmental Planner. • Suspend construction near cemeteries during services.
Site Restoration	Disturbance to public and private properties	<ul style="list-style-type: none"> • Construction area to be restored as soon as possible upon completion of pipe installation.

Appendix 4

Generic Sediment Control Plan for Watercourse Crossings by Horizontal Directional Drill

Appendix 5

Photographs



1. Tie-in location in Sebringville facing north along Perth Road 130



2. Typical running line along Perth East Road 130 facing south



3. Example of a watercourse crossing along Perth East Road 130



4. Running line through the woodland along Perth East Road 130 facing south



5. Running line along Perth East Road 130 through Moserville facing south



6. Proposed site location of the Milverton Distribution Regulation Station on Perth Road 131 and Line 61 facing north

Summary of Comments

TO BE FILED WHEN RECEIVED

Milverton Landowner Listing

Legal Description: PT LOT 7 CONCESSION 3 (MORNINGTON) PARTS 1, 2 & 3, 44R3679; PERTH EAST	Owner: [REDACTED]	PIN: 53065-0325(LT)	SIZE: 15m x 22m
--	--------------------------	----------------------------	------------------------

UNION GAS LIMITED

MORAVIANTOWN PROJECT

Contents

PROJECT SUMMARY.....	2
MARKET PROFILE	3
PROPOSED FACILITIES	5
PROJECT COSTS	5
ECONOMIC FEASIBILITY	5
DESIGN AND CONSTRUCTION	7
ENVIRONMENTAL MATTERS	8
LAND MATTERS.....	10
FIRST NATIONS AND MÉTIS CONSULTATION.....	10

Schedules

Schedule 1	Map of Proposed Facilities
Schedule 2	Customer Attachment Forecast
Schedule 3	Schematic of Proposed Project
Schedule 4	Capital Costs by Year
Schedule 5	Project DCF Analysis
Schedule 6	DCF Analysis & Parameters
Schedule 7	Design and Pipeline Specifications
Schedule 8	Union's Standard Construction Methods
Schedule 9	Proposed Construction Schedule
Schedule 10	Environmental Protection Plan
Schedule 11	OPCC Review

PROJECT SUMMARY

1. First Nations Officials, Residents, and Business Owners in the Delaware Nation of Moraviantown [“Project Area”], in the Municipality of Chatham-Kent, have requested natural gas service from Union Gas Limited [“Union”].
2. Union had identified a core area where construction of pipelines will take place. Norton Line, Knoll Road, School House Road, and Corn Plant Road ending at Austin Line [“Project”].
3. In addition to this core area Union may also develop a local distribution network which would serve other residents in the Delaware Nation of Moraviantown. The future development would depend upon interest in natural gas service, constructability and availability of funds. These residents are not known at the time of filing. Detailed maps will be finalized prior to construction.
4. This Project does not meet the thresholds to require a Leave to Construct application. In order to provide the Ontario Energy Board with information about this Project, Union has prepared an information package describing the Project. Union is also requesting an order from the OEB pursuant to section 36 (1), as described in earlier sections of this evidence.
5. Delaware Nation of Moraviantown community located along the Thames River near Thamesville, Ontario covering an area of approximately 13 square kilometers. Moraviantown is inhabited by the Lenape (Lunaapeew) People of the Delaware First Nation, with approximately 550 residents living in the community and a total Band membership of over 1000.
6. A map showing the location of the Delaware Nation of Moraviantown can be found at Schedule 1.
7. Union currently holds the Certificate of Public Convenience and Necessity (RP-2005-0016/EB-

2005-0312) and Franchise Agreement (RP-2005-0016/EB-2005-0313), for the Municipality of Chatham-Kent.

8. The route of the Proposed Facilities was selected in order to optimize economic benefits and social features while minimizing environmental impacts.
9. If the Application is approved, Union forecasts that 60 customers in the Project Area will have natural gas service by year 3 of the Project (43 residential and 17 commercial).
10. The total capital cost of the Proposed Facilities is approximately \$545,000.
11. The Project has a negative net present value ["NPV"] of \$(207,000) and a profitability index ["PI"] of 0.58.
12. An Environmental Protection Plan ["EPP"] for the Project has been prepared by Union's Environmental Planning Department. The comments of various provincial and municipal agencies and the public have been sought and considered in the development of the EPP. Union's standard construction procedures, combined with the appropriate supplemental mitigation measures recommended in the EPP, will be employed to address environmental and public concerns.
13. Construction of the proposed facilities for the Project is expected to be completed in 2016.
14. The pipeline and station facilities have been sized to meet the forecast future growth proposed in the area.

MARKET PROFILE

Community Profile

15. Delaware Nation of Moraviantown is a First Nations community located along the Thames River

near Thamesville, Ontario, covering an area of approximately 13 km². Delaware Nation of Moraviantown is inhabited by the Lenape (Lunaapeew) People of the Delaware First Nation, with approximately 550 residents living in the community and a total Band membership of over 1000.

Residential Survey

16. Union conducted an initial survey for the residential attachments by conducting a field survey of all potential premises within the Project Area. Formal surveys which will consist of meetings with the Chief and Council and residents of Delaware Nation of Moraviantown are on-going and will continue to take place in 2015 and 2016.
17. Historical attachment rates for a similar First Nation project completed in 2015 for the Duschenay First Nation were applied to the potential residential customers to determine total customer attachments for this project for the purposes of this application. The overall attachment rate applied was 100% for commercial and industrial customers in year 1. For residential customers an attachment rate of 83% is expected in the first three years, of which 70% will attach in year 1.

Commercial Survey

18. At the time of this Application, based on the approach noted above, Union forecasts that 17 commercial customers in the Project Area will have natural gas service by year 1 of the Project.

Customer Attachment Forecast

19. Union is forecasting a total of 43 existing residential and 17 existing small commercial will be attached by the third year of the Project as outlined in the customer attachment forecast in Schedule 2.
20. Union has based its customer attachment forecast on similar projects in other First Nations and discussions with local officials.

21. Union has met with the Delaware Nation of Moraviantown on numerous occasions. The Delaware Nation of Moraviantown support bringing natural gas to the area.

PROPOSED FACILITIES

22. The pipelines in the core project can be described as follows. The pipeline will start at the existing facilities on Norton Line and continuing southeast on Knoll Road, east on School House Road, and north on Corn Plant Road ending at Austin Line. A schematic drawing showing the Project is provided in Schedule 3.
23. The pipelines identified above have been sized to meet the forecast future growth in the Project Area.
24. In addition to this core area Union may also develop a local distribution network which would serve other residents in the Delaware Nation of Moraviantown. The future development would depend upon interest in natural gas service, constructability and availability of funds.

PROJECT COSTS

25. The total estimated cost for the Project is approximately \$545,000. This cost includes all pipeline costs of \$488,000 and the cost of services of \$57,000 for the first 3 years of the project.
26. Estimates of the capital costs for the construction of the proposed pipeline facilities are provided in Schedule 4. The estimated costs cover all costs related to materials, construction and labour required to construct distribution mains. This figure also includes environmental costs.

ECONOMIC FEASIBILITY

27. The Proposed Facilities are required in order to expand natural gas distribution to Moraviantown community.

28. A standalone Discounted Cash Flow (“DCF”) analysis was completed for the proposed expansion. Union has employed an economic feasibility test consistent with the Board’s recommendations in the E.B.O. 188 Report on Natural Gas System Expansion.
29. The DCF for the Moraviantown community can be found at Schedule 5. This Schedule indicates a Net Present Value (“NPV”) of (\$207,000) and Profitability Index (“PI”) of 0.58. The DCF is based on capital of \$491,000. Capital used in the DCF is the cost of the design of the minimum sized facilities to support the attachment forecast. The difference in costs between the minimum sized facilities and the proposed system design is approximately \$54,000. The table below illustrates the minimum and proposed capital costs.

DCF Capital (\$000's)

		1	2	3	4	5	6	7	8	9	10
Total											
Pipeline & Station Capital	434	434									
Service , M&R Installation	57	51	4	2							
Total	491	484	4	2	0	0	0	0	0	0	0

Proposed Capital (\$000's)

		1	2	3	4	5	6	7	8	9	10
Total											
Pipeline & Station Capital (1)	488	488									
Service , M&R Installation	57	51	4	2							
Total	545	539	4	2	0	0	0	0	0	0	0

Notes

1. Refer to Schedule 4

Capital used for economics represents the minimum design to support the attachment forecast.

The proposed capital will allow future growth to the system beyond the forecast.

30. The DCF shows the collection of the Temporary Expansion Surcharge (“TES”) and the Incremental Tax Equivalent (“ITE”) for a period of 4 years. Where the PI of a Community Expansion Project is less than 0.8 the TES and ITE shall have a minimum term of 4 years as described in Exhibit A, Tab 1, Section 4.3.
31. Schedule 6 provides the key inputs, parameters and assumptions used in completing the DCF

analysis.

DESIGN AND CONSTRUCTION

32. The design and pipe specifications are outlined in Schedule 7. All the design specifications are in accordance with the *Ontario Regulations 210/01* under the *Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*. This is the regulation governing the installation of pipelines in the Province of Ontario.
33. All polyethylene pipe and fittings will be manufactured and certified in accordance with the *Canadian Standards Association B137.4-09 Polyethylene (PE) Piping systems for Gas Services*. The pipe specifications are designed to provide the maximum operating pressure of 420 kPa. The pipeline will be tested in accordance with the requirements of the Ontario Regulation.
34. The minimum depth of cover to the top of the pipe and pipe appurtenances will be in accordance with the requirements of *Clause 12.4.8 of the CSA Code Z662-11* for polyethylene piping. Additional depth will be provided to accommodate existing or planned underground facilities, or where greater depth of excavation is warranted.

Construction Procedures and Project Schedule

35. The Proposed Facilities will be constructed using Union's standard practices and procedures and will be in compliance with the mitigation measures identified in the Environmental Protection Plan ["EPP"]. Schedule 8 provides a summary of Union's standard construction methods. Union's construction procedures are continually updated and refined to minimize potential impacts to the lands and the public.
36. Material is readily available for the Project and Union foresees no problem in obtaining a contractor to complete the proposed construction. Construction contract documents will be prepared at a later date. The EPP will be provided to the contractor.

37. Schedule 9 provides the proposed construction schedule for the Project. Construction of the Proposed Facilities is expected to begin in spring of 2016 and continue through to November of 2016.
38. Approvals are pending from the Municipality of Chatham Kent, Lower Thames Valley Conservation Authority and the Delaware Nation at Moraviantown.

ENVIRONMENTAL MATTERS

39. The EPP for the proposed pipeline was prepared by Union's Environmental Planning Department. The EPP was prepared to meet the intent of the Board's document *"Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario"* [2011]. A copy of the EPP is provided as Schedule 10.
40. The objectives of the EPP are to:
- a) document existing environmental features;
 - b) identify First Nation, agency and public concerns;
 - c) identify potential environmental impacts as a result of construction;
 - d) present mitigation techniques to minimize environmental impacts; and
 - e) provide pipeline contractors and environmental inspectors involved in the construction of the pipeline with general and site-specific guidelines for environmental protection that supplement Union's construction specifications.
41. The EPP was prepared before the scope of the Project was finalized. As such, some areas shown in the EPP may not be included in the Project.

42. All pipelines will be constructed in the manner recommended and described in the Board document *"Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon pipelines in Ontario"*.
43. A copy of the EPP has been submitted to the Ontario Pipeline Coordinating Committee ("OPCC"), local municipalities, government agencies and the Delaware Nation of Moraviantown. A summary of comments and Union's response will be provided in Schedule 11 as they are received.
44. There are six watercourse crossings associated with this Project. Union will follow all permit conditions from the Regulating Agency.
45. Union will work with Aboriginal Affairs and Northern Development Canada (AANDC) and the Delaware Nation of Moraviantown to confirm any necessary approvals to construct on First Nation land.
46. When the Project is constructed, the most up-to-date construction specifications will be followed.
47. Union will ensure that the recommendations in the EPP, commitments and the conditions of approval are followed. An environmental inspector will be assigned to the Project to ensure that all activities comply with all of the Board's conditions of approval.
48. The results of the EPP indicate that the environmental and socio-economic effects associated with construction of the Project are generally short-term in nature and minimal. There are no significant cumulative effects as a result of this pipeline construction.

LAND MATTERS

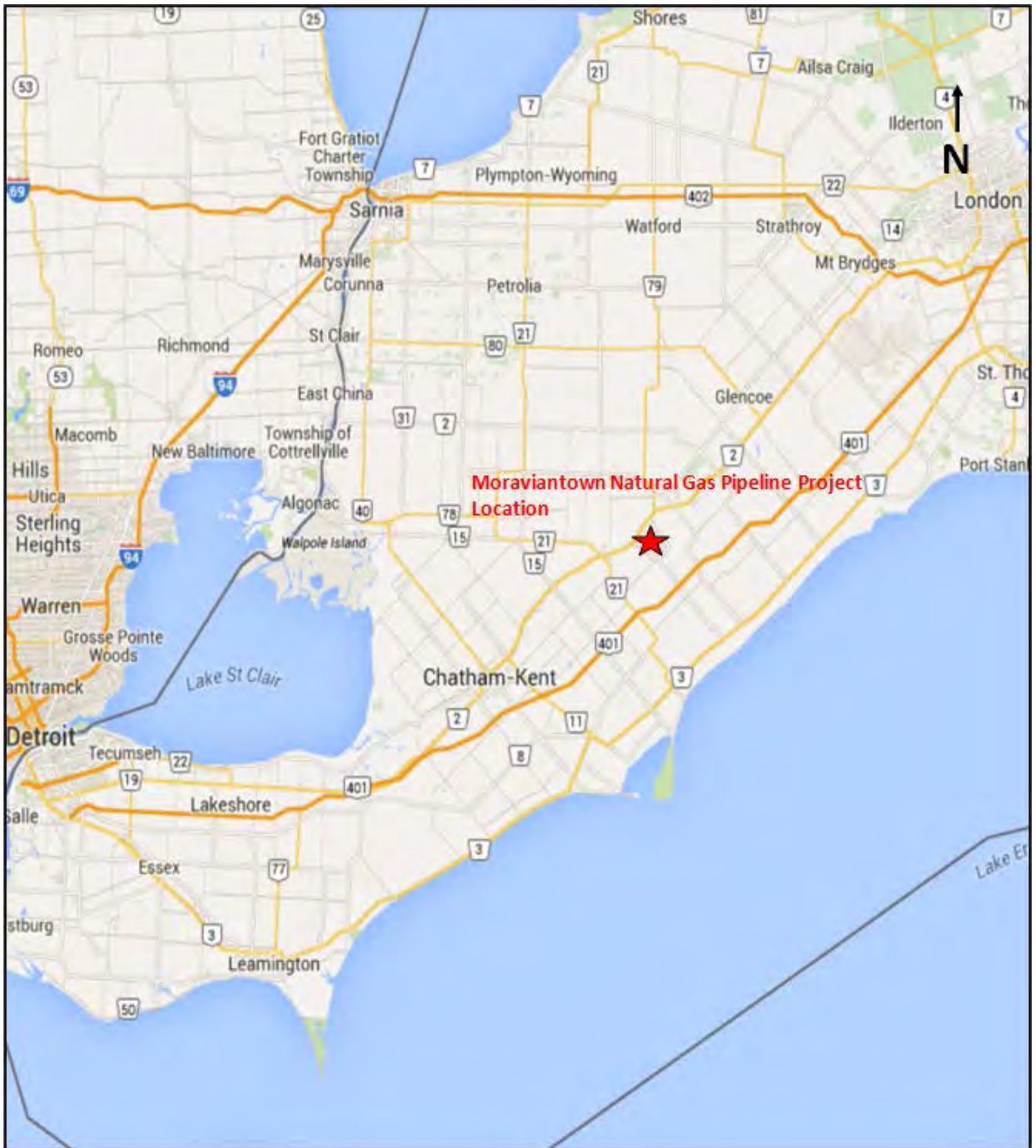
49. The proposed pipelines for the Project will be located within road allowances and no permanent or temporary land rights are required.
50. No stations are required for this Project.

FIRST NATIONS AND MÉTIS CONSULTATION

51. Union has a long standing practice of consulting with Métis and First Nations, and has programs in place whereby Union works with them to ensure they are aware of Union's projects and have the opportunity to participate in both the planning and construction phases of the Project.
52. Union has an extensive data base and knowledge of First Nations and Métis organizations in Ontario and consults with the Tribal organizations and the data bases of the Ministry of Natural Resources, Ministry of Aboriginal Affairs and Aboriginal Affairs and Northern Development Canada to ensure consultation is carried out with the most appropriate groups.
53. Union has signed a General Relationship Agreement with the Métis Nation of Ontario which describes Union's commitments to the Métis when planning and constructing pipeline projects.
54. Union has consulted with the Delaware Nation of Moraviantown since 2014 and continues to meet and consult with them on expansion of natural gas facilities to their community. The following is a summary of consultation which has occurred.

June 29, 2015	Union held a Community meeting to provide information on the expansion project to the community
June 26, 2015	Union met with Chief and Council to present natural gas expansion plans and details of OEB filing. Council approved approach and will continue to work with Union to source funding
June 1, 2015	Sent Environmental Protection Plan to Robin King
May 19, 2015	Sent update email to Chief Peter and Robin King on Union's OEB application which includes their community
March 16, 2015	Letters sent out by Chief Peters to Ontario Premier and Ministers from the Delaware Nation requesting Natural Gas expansion funding and supporting Union Gas expansion into Community
February 18, 2015	Meeting with Chief and Council cancelled last minute and rescheduled for late March as per Chief Peters
October 17, 2014	Chief Peters postponed Union presentation to February 2015 council meeting
Sept 19, 2014	Met with Chief Peters and Robin King Director of Economic Development to review the project and economics. Council meeting scheduled for Oct. 19 2014

55. Union will continue to meet and consult with the First Nations and the Métis organizations noted above.
56. During construction, Union has inspectors in the field who are available to First Nation's and Métis organization as a primary contact to discuss and review any issues that may arise during construction.
57. When Union completes the necessary archaeological assessments for the Project Union will consult with and provide the result of the surveys to any First Nations or Métis upon their request.



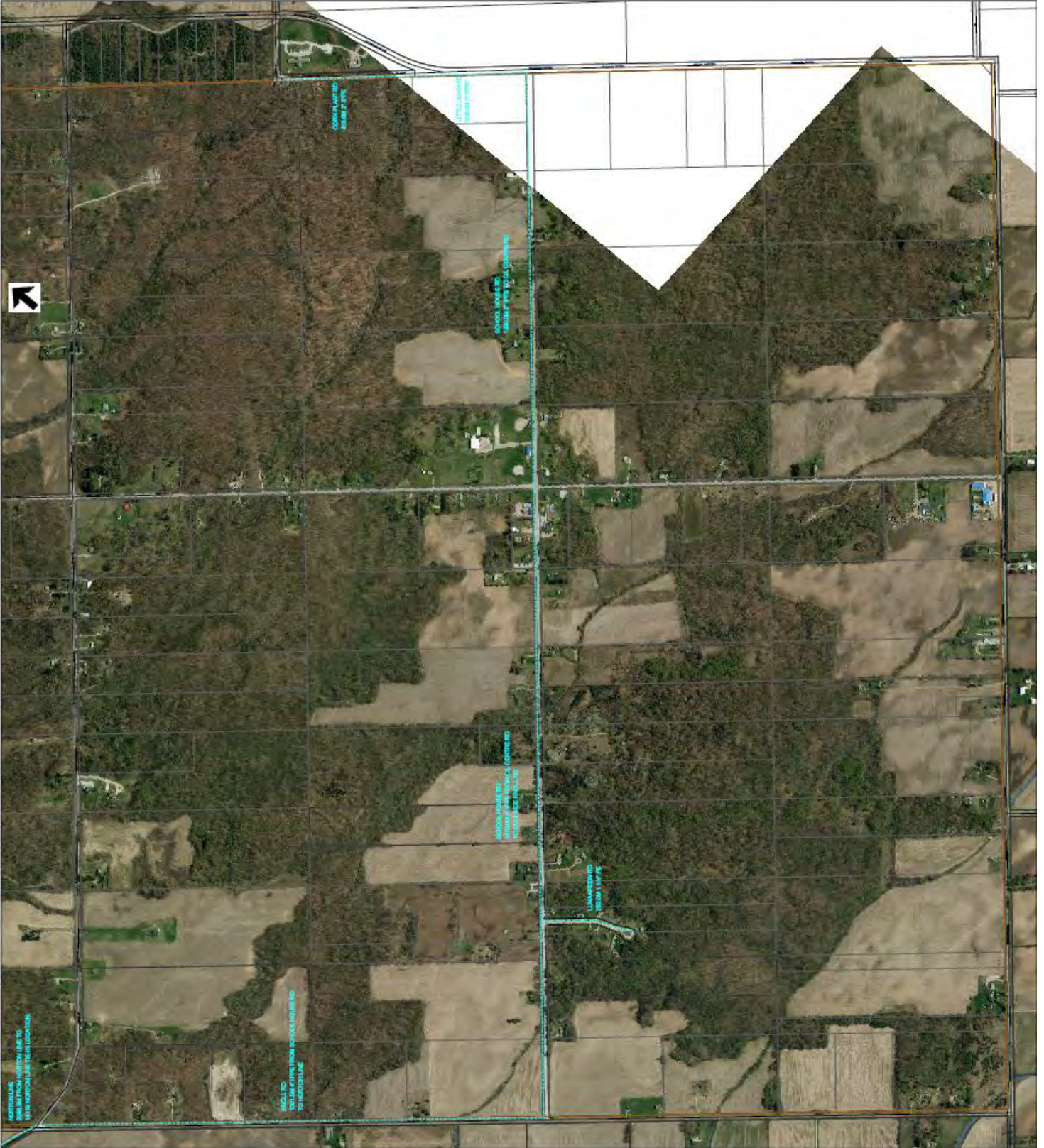
Moraviantown - Customer Attachment Forecast

Customer Type	Ultimate Potentials	Total % Attachment Potentials	Year 1 (2015)	Year 2 (2016)	Year 3 (2017)
Residential Conversion	53	83%	37	5	1
Small Commercial	17	100%	17		
Medium Commercial	0	100%	0		
Industrial	0	100%	0		
Total Attachments	70		54	5	1



PROPOSED MAIN

150.0M 4" EPIC MAIN ON NORTH SIDE
 NORTH LINE FROM 4111 HORTON LANE
 TO KNOX RD.
 150.0M 4" EPIC MAIN ON EAST SIDE
 KNOX RD. FROM 4111 HORTON LANE TO
 SCHOOL HOUSE RD.
 150.0M 4" EPIC MAIN ON NORTH SIDE
 SCHOOL HOUSE RD. FROM KNOX RD. TO
 150.0M 7" EPIC MAIN ON THE NORTH SIDE
 SCHOOL HOUSE RD. FROM CENTRE RD.
 TO LITTLE JOHN RD.
 150.0M 4" EPIC MAIN ON WEST SIDE
 LITTLE JOHN RD. FROM SCHOOL HOUSE
 RD. TO CORN PLANT RD.
 150.0M 4" EPIC MAIN ON THE WEST SIDE
 CORN PLANT RD. FROM LITTLE JOHN RD.
 TO AUSTIN LANE.
 250.0M 1 1/4" EPIC MAIN ON THE EAST SIDE
 AUSTIN LANE FROM LITTLE JOHN RD.
 TO TOTAL MAIN
 250.0M 4" EPIC MAIN
 250.0M 7" EPIC MAIN
 250.0M 1 1/4" EPIC MAIN



REVISION	DATE	BY	DESCRIPTION
1	07/23/2015	UNION	PROPOSED
2	07/23/2015	UNION	PROPOSED
3	07/23/2015	UNION	PROPOSED
4	07/23/2015	UNION	PROPOSED
5	07/23/2015	UNION	PROPOSED
6	07/23/2015	UNION	PROPOSED
7	07/23/2015	UNION	PROPOSED
8	07/23/2015	UNION	PROPOSED
9	07/23/2015	UNION	PROPOSED
10	07/23/2015	UNION	PROPOSED
11	07/23/2015	UNION	PROPOSED
12	07/23/2015	UNION	PROPOSED
13	07/23/2015	UNION	PROPOSED
14	07/23/2015	UNION	PROPOSED
15	07/23/2015	UNION	PROPOSED
16	07/23/2015	UNION	PROPOSED
17	07/23/2015	UNION	PROPOSED
18	07/23/2015	UNION	PROPOSED
19	07/23/2015	UNION	PROPOSED
20	07/23/2015	UNION	PROPOSED
21	07/23/2015	UNION	PROPOSED
22	07/23/2015	UNION	PROPOSED
23	07/23/2015	UNION	PROPOSED
24	07/23/2015	UNION	PROPOSED
25	07/23/2015	UNION	PROPOSED
26	07/23/2015	UNION	PROPOSED
27	07/23/2015	UNION	PROPOSED
28	07/23/2015	UNION	PROPOSED
29	07/23/2015	UNION	PROPOSED
30	07/23/2015	UNION	PROPOSED
31	07/23/2015	UNION	PROPOSED
32	07/23/2015	UNION	PROPOSED
33	07/23/2015	UNION	PROPOSED
34	07/23/2015	UNION	PROPOSED
35	07/23/2015	UNION	PROPOSED
36	07/23/2015	UNION	PROPOSED
37	07/23/2015	UNION	PROPOSED
38	07/23/2015	UNION	PROPOSED
39	07/23/2015	UNION	PROPOSED
40	07/23/2015	UNION	PROPOSED
41	07/23/2015	UNION	PROPOSED
42	07/23/2015	UNION	PROPOSED
43	07/23/2015	UNION	PROPOSED
44	07/23/2015	UNION	PROPOSED
45	07/23/2015	UNION	PROPOSED
46	07/23/2015	UNION	PROPOSED
47	07/23/2015	UNION	PROPOSED
48	07/23/2015	UNION	PROPOSED
49	07/23/2015	UNION	PROPOSED
50	07/23/2015	UNION	PROPOSED
51	07/23/2015	UNION	PROPOSED
52	07/23/2015	UNION	PROPOSED
53	07/23/2015	UNION	PROPOSED
54	07/23/2015	UNION	PROPOSED
55	07/23/2015	UNION	PROPOSED
56	07/23/2015	UNION	PROPOSED
57	07/23/2015	UNION	PROPOSED
58	07/23/2015	UNION	PROPOSED
59	07/23/2015	UNION	PROPOSED
60	07/23/2015	UNION	PROPOSED
61	07/23/2015	UNION	PROPOSED
62	07/23/2015	UNION	PROPOSED
63	07/23/2015	UNION	PROPOSED
64	07/23/2015	UNION	PROPOSED
65	07/23/2015	UNION	PROPOSED
66	07/23/2015	UNION	PROPOSED
67	07/23/2015	UNION	PROPOSED
68	07/23/2015	UNION	PROPOSED
69	07/23/2015	UNION	PROPOSED
70	07/23/2015	UNION	PROPOSED
71	07/23/2015	UNION	PROPOSED
72	07/23/2015	UNION	PROPOSED
73	07/23/2015	UNION	PROPOSED
74	07/23/2015	UNION	PROPOSED
75	07/23/2015	UNION	PROPOSED
76	07/23/2015	UNION	PROPOSED
77	07/23/2015	UNION	PROPOSED
78	07/23/2015	UNION	PROPOSED
79	07/23/2015	UNION	PROPOSED
80	07/23/2015	UNION	PROPOSED
81	07/23/2015	UNION	PROPOSED
82	07/23/2015	UNION	PROPOSED
83	07/23/2015	UNION	PROPOSED
84	07/23/2015	UNION	PROPOSED
85	07/23/2015	UNION	PROPOSED
86	07/23/2015	UNION	PROPOSED
87	07/23/2015	UNION	PROPOSED
88	07/23/2015	UNION	PROPOSED
89	07/23/2015	UNION	PROPOSED
90	07/23/2015	UNION	PROPOSED
91	07/23/2015	UNION	PROPOSED
92	07/23/2015	UNION	PROPOSED
93	07/23/2015	UNION	PROPOSED
94	07/23/2015	UNION	PROPOSED
95	07/23/2015	UNION	PROPOSED
96	07/23/2015	UNION	PROPOSED
97	07/23/2015	UNION	PROPOSED
98	07/23/2015	UNION	PROPOSED
99	07/23/2015	UNION	PROPOSED
100	07/23/2015	UNION	PROPOSED

Moraviantown Island Expansion Costs

2016 Construction

Pipeline & Equipment		Cost
250m	NPS 1-1/4 PE	\$393
2040m	NPS 2 PE	\$6,291
5140m	NPS 4 PE	\$48,234

Sub Total	\$54,918
Contingency 10%	\$6,590
Total	\$61,508

Construction & Labour		
Lay price	NPS 1-1/4 PE	\$7,129
Lay price	NPS 2 PE	\$58,169
Lay price	NPS 4 PE	\$230,467
Overheads		\$56,674
Survey		\$10,000
Archeological		\$25,000

Sub Total	\$387,438
Contingency 10%	\$38,744
Total	\$426,182

Interest During Construction	\$0
------------------------------	-----

Total Project Costs	\$487,690
----------------------------	------------------

Moraviantown

[illegible]

Moraviantown (Project Specific DCF Analysis) Stage 1 DCF - Listing of Key Input Parameters, Values and Assumptions (\$000'S)	
Discounting Assumptions Project Time Horizon Discount Rate	40 years commencing at facilities in-service date of July 1, 2016 Incremental after-tax weighted average cost of capital of 5.10%
Key DCF Input Parameters, Values and Assumptions Net Cash Inflow: Incremental Distribution Revenue: General Service rates Temporary Expansion Surcharge (TES) Incremental Tax Equivalent (ITE) Term of TES and ITE Operating and Maintenance Expense Incremental Tax Expenses: Municipal Tax Income Tax Rate CCA Rates: CCA Classes: Eligible Capital Expenditure (ECE) Class 51 (Distribution Mains) Class 51 (Distribution Services) Class 51 (Measuring & Regulating Equipment)	Approved per EB-2014-0356 Effective January 1, 2015 \$0.23 / M3 Estimated year 1 property tax 4 years Estimated incremental cost Estimated incremental cost 26.50% Declining balance depreciation rates by CCA class: 7% 6% 6% 6%
Cash Outflow: Incremental Capital Costs Attributed Change in Working Capital	Refer to Schedules 4 & 5 5.0513% applied to O&M

MORAVIANTOWN DESIGN AND PIPE SPECIFICATIONS

POLYETHYLENE PIPING

Design Specifications

Design Factor	-	0.40
Maximum Operating Pressure	-	550 kPa
Test Medium	-	Air , Nitrogen, or Water
Minimum Test Pressure	-	770 kPa
Minimum Depth of Cover (General)	-	0.6 m
Minimum Depth of Cover (Road Crossings)	-	0.6 m
Minimum Depth of Cover (Water Crossings)	-	1.2 m

Pipe Specifications

Size	-	NPS 4
SDR	-	11
Description	-	C.S.A. Standard B137.4-09
Size	-	NPS 2
SDR	-	11
Description	-	C.S.A. Standard B137.4-09

GENERAL TECHNIQUES AND METHODS OF CONSTRUCTION

1. Union Gas Limited (“Union”) will provide its own inspection staff to enforce Union’s construction specifications and *Ontario Regulation 210/01 under the Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*.
2. Pipeline construction is divided into several crews that create a mobile assembly line. Each crew performs a different function, with a finished product left behind when the last crew has completed its work.
3. Union’s contract specifications require the contractor to erect safety barricades, fences, signs or flashers, or to use flag persons as may be appropriate, around any excavation across or along a road.
4. It is Union’s policy to restore the areas affected by the construction of the pipeline to “as close to original condition” as possible. As a guide to show the “original condition” of the area, photos and/or a video will be taken before any work commences. When the clean up is completed, the approval of the landowner or appropriate government authority is obtained.
5. Construction of the pipeline includes the following activities:

Locating Running Line

6. Union establishes the location where the pipeline is to be installed (“the running line”). For pipelines within road allowances, the adjacent property lines are identified and the running line is set at a specified distance from the property line.

Stringing

7. The pipe is strung adjacent to the running line. The joints of pipe are laid end-to-end on supports that keep the pipe off the ground to prevent damage to the pipe coating.

Welding

8. The pipe is welded/fused into manageable lengths. The welds in steel pipe are radiographically inspected, if required, and the welds are coated.

Burying

9. Pipe may be buried using either the trench method or the trenchless method. All utilities that will be crossed or paralleled by the pipeline are located by the appropriate utility prior to installing the pipeline. Prior to trenching, all such utilities will be hand-located or hydro vacuumed.

Trench Method: Trenching is done by using a trenching machine or hoe excavator depending upon the ground conditions. Provisions are made to allow residents access to their property, as required. All drainage tiles that are cut during the trench excavation are flagged to signify that a repair is required. Next, the pipe is lowered into the trench. For steel pipe, the pipe coating is tested using a high voltage electrical tester as the pipe is lowered into the trench. All defects in the coating are repaired before the pipe is lowered in. Next, if the soil that was excavated from the trench is suitable for backfill, it is backfilled. If the soil is not suitable for backfill (such as rock), it is hauled away and the trench is backfilled with suitable material such as sand. After the trench is backfilled, drainage tile is repaired.

Trenchless Method: Trenchless methods are alternate methods used to install pipelines under railways, roads, sidewalks, trees and lawns. There are two trenchless methods that could be used for the proposed pipeline, depending on the soil conditions, and the length and size of the installation. These methods are boring (auguring) and directional drilling.

Tie-Ins

10. The sections of pipelines that have been buried using either the trench or trenchless method are joined together (tied-in).

Cleaning and Testing

11. To complete the construction, the pipeline is cleaned, tested in accordance with Union's specifications.

Restoration

12. The final activity is the restoration. The work area is leveled, the sod is replaced in lawn areas and other grassed areas are re-seeded. Where required, concrete, asphalt and gravel are replaced to return the areas to as close to the original conditions as possible.

Moraviantown Expansion Pipeline Construction Schedule

Task Name	2015												2016												2017		
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar		
Environmental Assessments and Approvals																											
Engineering																											
Pre-Construction Survey																											
Material Acquisition																											
File Application																											
OEB Approval																											
Construction Survey																											
Construction and Testing																											
Clean-Up																											
In-Service																											

MORAVIANTOWN NATURAL GAS PIPELINE PROJECT

ENVIRONMENTAL PROTECTION PLAN

**Prepared By: Union Gas Limited
Environmental Planning
May 2015**

TABLE OF CONTENTS

Moraviantown Natural Gas Pipeline Project Environmental Protection Plan

		<u>Page No.</u>
1.0	Introduction	1
2.0	Project Background	2
3.0	Planning Process.....	3
	3.1 Key Activities	3
4.0	Consultation.....	3
5.0	Routing	4
	5.1 Routing Selection	4
6.0	Construction, Operation and Maintenance	4
	6.1 General Construction Practices	4
	6.2 Operation and Maintenance Practices	5
7.0	Potential Impacts and Mitigation.....	6
	7.1 General Environmental Features	6
	7.2 Mitigation Summary.....	8
8.0	Cumulative Impacts.....	8
9.0	Summary and Recommendations	9

Appendices

Appendix 1	Project Location Maps
Appendix 2	Table 1, Pipeline Construction - Mitigation Summary
Appendix 3	Generic Sediment Control Plan for Watercourse Crossings by Horizontal Directional Drill
Appendix 4	Photographs

Moraviantown Natural Gas Pipeline Project
Environmental Protection Plan

1.0 INTRODUCTION

Union Gas has been bringing clean, reliable, and affordable natural gas service for more than a century to over 400 communities across Ontario and as part of its Community Expansion Program, is proposing to bring natural gas service to the community of Moraviantown.

This Environmental Protection Plan (EPP) has been prepared to document a plan for the protection of the environment during construction of a natural gas pipeline system by Union Gas Limited (Union), to provide natural gas service to the Delaware Nation at Moraviantown.

Specifically this report will:

- Describe the proposed work necessary for the Project;
- 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 public consultation opportunities.

Moraviantown is a First Nation community located along the Thames River near Thamesville, Ontario, covering an area of approximately 13 km². Moraviantown is inhabited by the Lenape (Lunaapeew) People of the Delaware First Nation, with approximately 550 residents living in the community and a total Band membership of over 1000. Mapping for the project can be found in Appendix 1.

The project will include constructing a new lateral natural gas pipeline from a proposed tie-in point to the Union system located at 14119 Norton Line in Thamesville to service residents and businesses in Moraviantown. The pipeline will travel along Norton Line to Knoll Road, along School House Line to Corn Plant Road, and end at Austin Line.

The lateral pipeline system will be approximately 7.43 kilometres in length consisting of 5.14 kilometres of NPS (Nominal Pipe Size) 4 inch plastic pipeline (NPS 4 PE piping), 2.04 kilometres of NPS 2 inch plastic pipeline (NPS 2 PE piping), and 250 metres of 1 ¼ inch plastic

Moraviantown Natural Gas Pipeline Project
Environmental Protection Plan

pipeline (NPS 1 ¼ PE piping). Approximately 5.73 kilometres of piping will be located in Moraviantown. A map identifying the running line is attached in Appendix 1.

The EPP defines the environmental features potentially affected by the proposed pipeline and documents the various environmental protection measures that will be implemented by Union during pipeline construction to reduce the impact on these features.

2.0 PROJECT BACKGROUND

Founded in 1792, the Delaware Nation at Moraviantown is one of the oldest settlements in Chatham-Kent. The original village at Moraviantown was on the north side of the Thames River, but was lost at the close of the War of 1812 where Moraviantown played an integral role defending their land alongside the British, Chief Tecumseh and other allied forces. The community was later rebuilt at its present location on the south side of the River.

The Delaware Nation is the community's main employer, as they own and operate a grocery store and restaurant, and administer government services and programs in Moraviantown.

Union and Moraviantown have been looking to bring natural gas to the community for many years. Union and Moraviantown are looking again to bring natural gas to the community and are committed to working together to protect the environment throughout all stages of the project.

Union is committed to working with the Delaware Nation at Moraviantown, the Municipality of Chatham – Kent, Ministry of Natural Resources and Forestry (MNR), Ministry of Tourism, Culture and Sport (MTCS), Aboriginal Affairs and Northern Development Canada (AANDC), Lower Thames Valley Conservation Authority (LTVCA) and any other party that may have an interest in the project in order to ensure environmental protection and to secure all necessary permits or approvals.

An Archaeological Assessment and a Heritage Assessment will be completed prior to construction in accordance with the MTCS guidelines and a review for any species of concern will be conducted.

Moraviantown Natural Gas Pipeline Project
Environmental Protection Plan

Once all approvals have been received for the project, Union will contact all people who will be directly affected by pipeline construction. If landowners have site specific concerns, Union will meet with them to discuss details relating to construction. A Union supervisor will be on site at all times during construction to deal with any questions that may arise.

Once the pipeline is in operation, Union will initiate an ongoing maintenance program to ensure the integrity of the pipeline.

3.0 PLANNING PROCESS

3.1 Key Activities

The following is a summary of the key activities for the development of the Moraviantown Natural Gas Pipeline Project:

Project Initiation	Fall, 2014
Finalize Environmental Protection Plan	May, 2015
Construction	As early as Fall 2015/Spring 2016
Pipeline In Service	Fall 2015/Spring 2016
Post Construction Monitoring	Spring/Summer 2016/Spring 2017

4.0 CONSULTATION

Consultation with Moraviantown began in 2014 and has been ongoing. To date, Union has informed the Chief, Community Planner, and Roads Supervisor of the proposed running line and the issues they may encounter. Union has also prepared a presentation outlining the details of Union's proposal that will be presented to the Delaware Nation Chief and Council at a later date. A community information session will also be held in Moraviantown that will outline the details of the proposal.

Moraviantown Natural Gas Pipeline Project
Environmental Protection Plan

5.0 ROUTING

5.1 Route Selection

In determining the route for the pipeline, Union's District Office looked for a route that offered the most natural gas connections. A route running along School House Line provides the potential for the most natural gas connections as there are a number of residential and commercial properties and it is the central road in Moraviantown. Along School House Line there is a Health Centre, Administration Office, Police Detachment, Early Learning Centre, and a Day School.

Please see Appendix 1 for the preferred running line and Appendix 4 identifying a number of photos along the proposed running line.

6.0 CONSTRUCTION, OPERATION AND MAINTENANCE

6.1 General Construction Practices

Clearing and Grading

This prepares the right-of-way to allow the construction of the pipeline. Brush, trees and grass are cut or removed and the ground levelled.

Stringing

The pipe is strung next to the proposed pipeline location. The sections of pipe are laid end to end and set on supports that keep the pipe off the ground and prevent damage to the coating.

Trenching

To install the pipeline a trench will be dug. The trench is usually excavated using a backhoe. The width of the trench is approximately 0.5 m and the depth will be a minimum of 80 cm.

The excavator will dig the trench and place the spoil in a pile beside the trench. Once the trench is excavated, the pipeline will be installed and if the spoil is suitable, it will be placed back in the trench. Any unsuitable spoil will be removed from the site and disposed of in an appropriate manner.

Moraviantown Natural Gas Pipeline Project Environmental Protection Plan

A number of areas along the proposed route, such as watercourses, will be installed using horizontal directional drill (HDD).

Cleaning and Testing

To complete construction, the pipeline is cleaned and pressure tested in accordance with the Energy Act.

Restoration

It is Union's policy to restore the affected areas to "as close to original" condition as practicable. To ensure the quality of the restoration, pictures of the construction area will be taken before the work commences.

Road Crossings

It is proposed that all paved road crossings will be drilled. The procedure of drilling is essentially drilling a hole under the roadway, removing the auger and inserting the pipeline into the hole. To set the auger in place, sending and receiving pits or boring bays must be dug on either side of the road. The length of the crossing and the size of the pipe determine the size of the drilling equipment and bore bays.

In the event that it is not possible to drill the crossings, they will be open cut after discussions with the local roads authority. The public will be notified of any road closures. Union will attempt to maintain one lane of traffic at all times.

6.2 Operation and Maintenance Practices

Like any system, once the pipeline system is installed it has to be maintained and serviced on a regular basis. The following paragraphs will describe the most common work to be performed by Union personnel after the gas main has been installed.

Locates

Union provides a free locate service to any person or business who may be working near a pipeline. The pipeline locator is comprised of two parts, a transmitter and a receiver. To perform a locate, the transmitter is connected to the gas facility. The transmitter sends a small current

Moraviantown Natural Gas Pipeline Project
Environmental Protection Plan

through the facility, which is picked up by the receiver. The location of the pipeline is then marked using stakes or yellow paint. No excavation is required.

Leak Surveys

To ensure that there are no leaks in the system, a company representative or agent will "leak survey" the pipeline. The leak surveyor will walk along the gas main and carry a small machine that can detect natural gas. No excavation is required to complete the leak survey. However, if leaks are detected, excavations will be required to repair the pipeline.

7.0 POTENTIAL IMPACTS AND MITIGATION

7.1 General Environmental Features

Watercourse Crossings

It will be necessary to cross 6 watercourses as part of Phase I of the project. The watercourses are small creeks, intermittent streams and drainage ditches.

Watercourses will be crossed above the existing culverts where depth of cover is adequate. Where this is not possible, watercourses will be crossed using the HDD drilling method and will be completed as per the Union Gas Limited and Fisheries and Oceans Canada – Ontario Great Lakes Area Agreement (DFO-OGLA/UGL AGREEMENT 2008). The crossing plans for HDD can be found in Appendix 3.

There are no in-stream timing windows associated HDD crossings and as according to the Agreement, there are no concerns with Species at Risk when watercourses are installed using the HDD method.

By installing pipeline above watercourses or by drilling all watercourses, Union and Moraviantown do not anticipate any impacts to watercourses.

Union will adhere to its agreement with the Department of Fisheries and Oceans (DFO) and will acquire any necessary watercourse crossing permits from the MNRF and LTVCA.

Moraviantown Natural Gas Pipeline Project
Environmental Protection Plan

Tree Clearing

There is no tree clearing associated with the project.

Should tree clearing become necessary, it will be restricted from occurring between April 1 to August 31 in accordance with the Migratory Bird Convention Act and Migratory Bird Regulations, to avoid bird nests and eggs. If project scheduling requires the removal of trees or shrubs during the nesting period, a qualified ornithologist will be required to assess the area of removal for evidence of nesting activity prior to removal to avoid any potential loss of active nests.

Cultural Heritage Resources

Union will retain the services of a licensed archaeological consultant to initiate a Stage I Archaeological Assessment and, if required, a Stage II Archaeological Assessment.

The survey will take place prior to construction in accordance with the MTCS guidelines to identify known or potential archaeological planning constraints within the project area. The survey will serve to confirm the presence of significant archaeological resources subject to potential impacts from the proposed project activities.

If deeply buried cultural remains are encountered during construction, all activities will be suspended and the archaeological consultant as well as the MTCS will be contacted to determine the appropriated course of action.

Union will retain a Heritage Specialist from an independent third party consultant to review the running line for potential cultural heritage landscapes and built heritage resources. Union will follow the recommendations of the Heritage Specialist.

As construction is proposed to remain entirely within in the disturbed portion of the road allowance, it is anticipated there will be no impacts to archaeological resources, built heritage resources or cultural heritage landscapes.

Water Wells

A hydrogeologist will review the area before construction. Based on this pre-construction assessment, a water well monitoring program will be implemented in areas where the hydrogeologist believes that pipeline construction may affect water wells. The hydrogeologist will also be available during construction in the event that there are complaints regarding water wells.

Species at Risk

Union and Moraviantown will retain an independent third party consultant to review the running line for potential species at risk and determine if any species will be impacted by construction activities. If species at risk are identified, Union will work with the consultant and the appropriate governing agency to develop an appropriate mitigation plan.

Mitigation could include avoiding certain areas at sensitive times, directional drilling sensitive areas, or any measure that helps reduce potential impacts. Impacts to sensitive species is anticipated to be minor in nature as the pipeline will be located within the disturbed portion of the road allowance and that many features will be directionally drilled.

7.2 Mitigation Summary

Table 1 located in Appendix 2 provides a general summary of the potential impacts, as well as the proposed mitigation measures that will be implemented during construction to minimize impacts on the environment. These measures will be implemented as well as the specific measures identified in section 7.1.

8.0 CUMULATIVE IMPACTS

The following section considers the cumulative effects of construction on the lands due to the project. The definition of cumulative effects used in this report is: “changes to the environment that are likely to result from a particular project in combination with other projects or activities that have been or will be carried out”.

Moraviantown Natural Gas Pipeline Project
Environmental Protection Plan

It is expected that construction of the natural gas pipeline system in Moraviantown will result in both minor positive and negative cumulative effects. There may be cumulative impacts between this pipeline and other projects in the area, although at this time Union and Moraviantown are unaware of any projects that would interact with this proposal.

Additional noise, dust and traffic could be an issue should construction occur concurrently however, the benefits of having these facilities will, in the long term, be a positive impact. It is not expected that any threshold or triggers will be exceeded since the construction of this pipeline is generally minor in nature and takes place in a previously disturbed area. Indirect benefits that are expected include increased development in the area with the availability of natural gas.

Constructing natural gas pipelines within road allowances that have been previously disturbed will focus, if not entirely limit, cumulative effects to a corridor planned and designated for infrastructure projects.

9.0 SUMMARY AND RECOMMENDATIONS

This Environmental Protection Plan describes a strategy for the protection of the Environment during the construction of a natural gas pipeline system in Moraviantown. The plan has been developed by noting the environmental features in the area and the potential impacts of construction. The plan recommends a number of measures to reduce the impacts of the development.

It is recommended that the pipeline is monitored the year after construction to ensure that restoration measures were effective. If additional restoration measures are required, they should be completed as soon as possible. It is also recommended that landowners and tenants have access to Union Gas and Moraviantown personnel in order to address any concerns that may arise during construction.

With the implementation of the recommended mitigation measures, and ongoing landowner and agency communication, the Moraviantown Natural Gas Pipeline Project is not anticipated to have any significant adverse environmental or socio-economic effects.

Appendix 1

Project Location Maps

GENERAL PROJECT LOCATION



MORAVIANTOWN PROPOSED PIPING



Appendix 2

Table 1

Pipeline Construction – Mitigation Summary

**TABLE 1: MITIGATION SUMMARY
PIPELINE CONSTRUCTION**

Issue	Potential Impact	Proposed Mitigation
Paved Driveways and Roadways	Disruption to local traffic, landowners and tenants	<ul style="list-style-type: none"> • All paved roadways and driveways to be bored if practical. • If it is not possible to bore driveways and roads, steel plates will be on site to provide access to landowners and tenants. The Company will attempt to keep one lane of traffic open if possible. Traffic controls will be implemented as required. • Driveways will be repaired as soon as possible. • For driveways that require cutting, the excavation is to be filled with sand and granular material and compacted.
Gravel Driveways and Roadways	Disruption to landowners and tenants	<ul style="list-style-type: none"> • Roadways and driveways will be open cut. • Maintain one lane of traffic if possible. Implement traffic controls as required. • Steel plates will be kept on site to provide access to landowners and tenants. • Driveways will be repaired as soon as possible.
Traffic	Disruption to local citizens	<ul style="list-style-type: none"> • At least one lane of traffic will be maintained at all times. • Flag persons and warning devices will be used to notify traffic of the construction zone in accordance with Ministry of Transportation standards.
Public Safety	Public safety concerns	<ul style="list-style-type: none"> • Company inspectors to ensure public safety on construction site. • Ensure proper signage and flag persons if required.
Commercial/Retail Businesses and Recreational Areas	Disruption to businesses	<ul style="list-style-type: none"> • Ensure access at all times. • Restore area as soon as possible after construction. • Schedule construction with owners or managers, where necessary.
Construction Noise	Disturbance to landowners and tenants	<ul style="list-style-type: none"> • Construction to be carried out during daylight hours whenever possible. • Ensure equipment is properly muffled.
Nuisance Dust	Disruption to landowners and tenants.	<ul style="list-style-type: none"> • Control dust as required.
Construction Equipment	Disruption to landowners and tenants	<ul style="list-style-type: none"> • Equipment will be stored off road shoulders when not in use.
Landowner Concerns	Disruption to landowners and tenants	<ul style="list-style-type: none"> • The Company to provide landowners and tenants with the telephone numbers of supervisory personnel.
Fences	Disruption to landowners and tenants. Loss of control of animals inside fenced areas.	<ul style="list-style-type: none"> • Landowners and tenants will be contacted before any fences are disturbed. • Temporary fencing will be erected if requested by landowner or tenant. • Fences will be replaced as soon as possible.
Front Yards	Disruption to landowners and tenants.	<ul style="list-style-type: none"> • Landowners and tenants will be notified prior to construction. • Restore lawns and yards to original condition

TABLE 1: MITIGATION SUMMARY (Continued)

Issue	Potential Impact	Proposed Mitigation
Mailboxes	Disruption to Landowners	<ul style="list-style-type: none"> • Notify landowners prior to construction. • Restore as soon as possible. • Provide temporary alternative if necessary.
Underground Utilities	Disruption of services	<ul style="list-style-type: none"> • Obtain "locates" from all utilities. • If utilities are damaged, repair as soon as possible.
Archaeology	Disturbance of heritage resources	<ul style="list-style-type: none"> • An archaeological assessment will be completed prior to construction • Stop construction if artifacts are encountered. • Notify Ontario Ministry of Tourism, Culture and Sport.
Water Wells	Disruption to water supply	<ul style="list-style-type: none"> • If water quality/quantity problems occur as a result of construction activities, the Company will supply potable water until the situation has been corrected. • Conduct hydrogeology investigation and monitor wells as required.
Trees	Damage to Trees Disturbance to wildlife	<ul style="list-style-type: none"> • No tree removal is anticipated • If necessary to remove trees, alter alignment to avoid trees if possible. • Pipeline to be located one metre from base of tree if possible. • Trees to be removed outside of avian nesting window • Discuss restoration plans with landowner.
Watercourse Crossings	Water quality concerns	<ul style="list-style-type: none"> • Union will comply with all permit conditions. • Union will adhere to all Company specifications and Department of Fisheries and Oceans endorsed Generic Sediment Control plans for watercourse crossings.
Natural Areas	Sedimentation run-off	<ul style="list-style-type: none"> • Ensure sediment barriers such as straw bales/sediment fencing are used where there is a potential for run-off.
Vegetative Cover	Loss of vegetative cover leading to soil erosion	<ul style="list-style-type: none"> • Restore cover by means of seeding or hydro-seeding as soon as possible.
Soils: Erosion	Introduction of sediment/ silt to adjacent lands	<ul style="list-style-type: none"> • Restore disturbed soils as soon as possible after construction.
Road Side Ditches	Water quality concerns	<ul style="list-style-type: none"> • Ensure ditches are returned to pre-construction condition as quickly as possible. • Install rock rip rap/straw bale check dams as required.
Spills	Public safety issue	<ul style="list-style-type: none"> • Ensure the Ministry of Environment and Climate Change is notified, as per spill procedure. • Clean up spilled material.
Contaminated Soils	Dealing with contaminated materials Public safety issue	<ul style="list-style-type: none"> • No sites are anticipated as a result of this proposal however should suspect soils be uncovered, work should stop immediately and the Union Gas Environmental Department contacted. • Clean up contaminated material following Company and MOECC procedures.
Cemeteries	Disturbance to unmarked grave sites and disruptive to services.	<ul style="list-style-type: none"> • Confirm location of all cemeteries with Moraviantown. • Stop construction if suspect material encountered and immediately notify Environmental Planner. • Suspend construction near cemeteries during services.
Site Restoration	Disturbance to public and private properties	<ul style="list-style-type: none"> • Construction area to be restored as soon as possible upon completion of pipe installation.

Appendix 3

Generic Sediment Control Plan for Watercourse Crossings by Horizontal Directional Drill

Generic Sediment Control Plan – Horizontal Directional Drill

Fisheries and Oceans Canada (DFO) is responsible for protecting fish and fish habitat across Canada. Under the Fisheries Act no one may carry out a work or undertaking that will cause the harmful alteration, disruption or destruction (HADD) of fish habitat unless it has been authorized by the DFO. By following the conditions and measures set out in the Stream Crossing Review and this Drawing, you will be in compliance with subsection 35(1) of the Fisheries Act.

This plan sets out the measures that will be taken by Union Gas Limited (company) and its contractors in order to avoid negative impacts to fish habitat during horizontal directional drill crossings. The conditions and techniques set out on this plan are to be followed unless approved otherwise by the DFO.

Measures to Protect Fish and Fish Habitat when Horizontal Directional Drilling

The company must use materials, construction practices, mitigation techniques and monitoring of operations of every water crossing in order to prevent an unauthorized HMD or the impairment of water quality. The following requirements apply to any permanent or intermittent waterbody (stream, river, pond) and areas adjacent to it.

- * Design the drill path to an appropriate depth below the watercourse to minimize the risk of frac-out and to a depth to prevent the line from becoming exposed due to natural scouring of the stream bed. Ensure the drill entry and exit points are far enough from the banks of the water course to have minimal impact on these areas.
- * The company will adhere to all permits and approvals of federal and provincial agencies related to watercourse crossings.
- * The company will notify the appropriate federal or provincial agencies related to watercourse crossings.
- * Use existing trails, roads or cut lines wherever possible, as access routes to avoid disturbance to the riparian vegetation.
- * Sediment fence must be installed between the work site and the watercourse. Ensure all fencing is properly keyed into the ground.
- * Prior to removal of the low vegetative cover, effective mitigation techniques for erosion and sediment control must be in place to protect water quality. Limit the areal extent of disturbance to the minimum and within the road or utility right-of-way. Delay grubbing to immediately prior to the crossing operation.
- * Materials removed or stockpiled during construction must be deposited in a manner to ensure sediment does not enter into a waterbody. This material must be protected with appropriate erosion and sediment controls devices (sediment fencing, strawbales).
- * All vehicles, machinery and other construction equipment shall not enter the water. There must be no fording of any waterbody. The company is to adhere to the Generic Sediment Control Plan For Temporary Vehicle Crossings. This plan is endorsed by the DFO.
- * Refuelling and lubrication of equipment will be conducted in areas that will allow any accidental spill of deleterious substance to be disposed of in an approved location before it reaches any waterbody. Appropriate spill prevention kits shall be readily available on site.
- * Monitor the watercourse to observe signs of surface migration (frac-out) of drilling mud during all phases of construction.
- * There are no in-stream timing restrictions on this work.
- * The company will be held responsible for implementation of this plan.

Crossing Procedures

- * Sediment fences are to be established between the entry and exit points and the watercourse (potential for sediment to enter watercourse)
- * At a minimum the entry and exit points must be located as identified on this plan.
- * Mud sump pits are to be excavated at the entry and exit points of the drill to contain drilling fluids to prevent sediment and other deleterious substances from entering the watercourse. If this cannot be achieved, use silt fences or other effective sediment and erosion control measures to prevent drilling mud from entering the watercourse. These pits must be excavated prior to back reaming.
- * All drilling fluids are to be contained during the entire drilling process and promptly removed as sump pits are filled and/or when the drill is completed.
- * All excess material is to be removed from the construction site to an approved location.
- * Monitoring of the watercourse must be completed during all phases of the crossing attempt.

Emergency Frac-out Response and Contingency Planning

- * Keep all material and equipment needed to contain and clean up drilling mud releases on site and readily accessible in the event of a frac-out.
- * The drilling procedure will be closely monitored throughout the crossing attempt to limit the extent of a "fracture" (frac out).
- * If the pilot drill results in a "fracture" (drill fluids enter the stream bed or stream banks), drilling should be stopped immediately and the procedures outlined in the Environmental Compliance section should be followed.
- * Measures must be taken to contain the drilling mud and prevent its further migration into the watercourse. Measures to control fracturing will include, stopping the drill, the use of vacuum trucks, excavation of relief pits (dry land) and any other measure deemed appropriate by the company.
- * Prioritize cleanup activities relative to the risk of potential harm and dispose of the drilling mud in a manner that prevents re-entry into the watercourse.
- * Ensure clean up measures do not result in greater damage to the banks and watercourse than from leaving the drilling mud in place.
- * Once the site has been deemed secure and the risk of drilling mud entering the watercourse has been addressed, the drill shall be pulled back and can be restarted with a new deeper attempt and/or a change to the existing running line, to attempt to avoid the fracturing problem.
- * If subsequent drill attempts result in additional fracturing, then the crossing shall be halted and the Environmental Planning group should be contacted. Additional permits or authorizations to continue the drill using in-stream mitigation or to change the crossing technique, may be required.
- * In the event that the horizontal directional drill cannot be completed a dam and pump or flumed crossing technique will be implemented following the specific Generic Sediment Control Plan endorsed by DFO under the DFO-OGLA AGREEMENT 2008.

Environmental Compliance

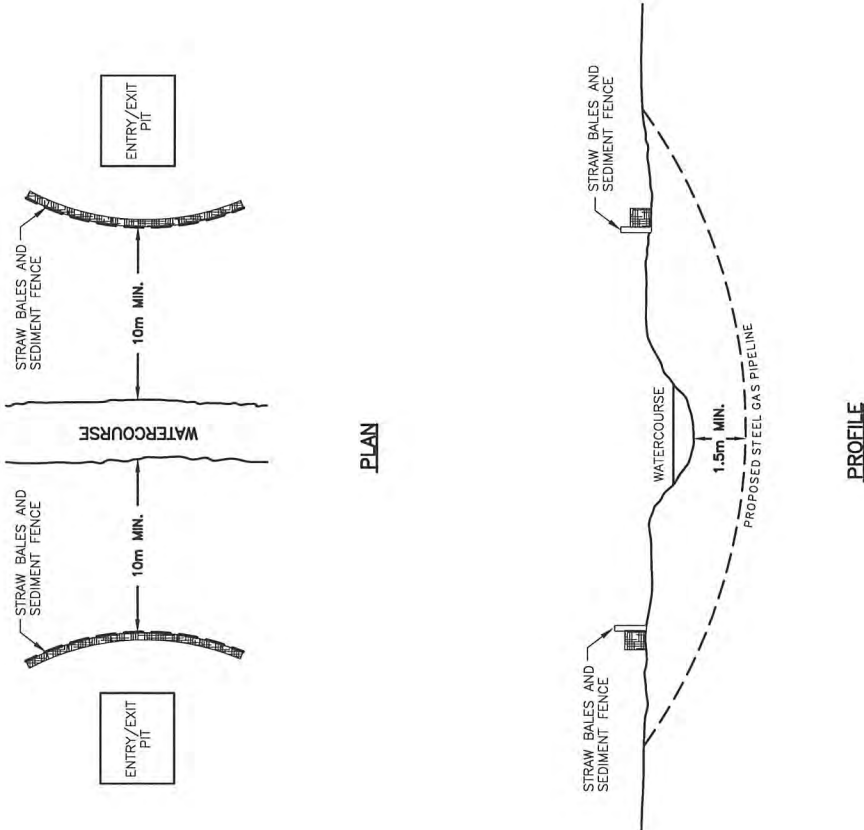
Contractor

- * In the event that drilling fluids enter the watercourse or turbidity is generated by air migration, the Ministry of the Environment (MOE) shall be contacted by the contractor in compliance with their spills policy
- * Such an incident is to be phoned into the MOE Spills Action Centre at 1-800-268-6060 by the contractor. The Spills Action Centre will require the following information:
 - * The nature of the incident (what happened and what materials were involved).
 - * Approximate volume of material involved.
 - * The incident location (lot, concession, township, county and/or city).
 - * Actions that have or will be taken.
 - * The name and telephone number of the person calling.
- * The incident should be monitored:

Company

- * In the event that drilling fluids enter the watercourse or turbidity is generated by air migration, the Department of Fisheries and Oceans or local Conservation Authority (CA) shall be contacted by the Company Inspector. DFO contact information is provided on the Stream Crossing Review and CA contact information can be found on the permit.
- * When this has been completed, Union's Environmental Planning Department or Lands Department staff shall also be notified.
- * All calls identified above are mandatory and are to be completed immediately after the incident has occurred.

Minimum Horizontal Directional Drill Setback and Depth.



- NOTES:
- STRAW BALES AND SEDIMENT FENCE TO BE SET UP A MINIMUM OF 10m FROM WATERCOURSE.
 - HORIZONTAL DIRECTIONAL DRILL TO BE SET UP BEHIND STRAW BALES AND SEDIMENT FENCE.
 - MINIMUM OF 1.5m COVER FROM TOP OF PIPE TO BED OF WATERCOURSE.
 - ALL DISTURBED AREAS TO BE RESTORED TO PRE-CONSTRUCTION CONDITIONS OR AS CLOSE AS POSSIBLE.

Restoration

The following conditions should be adhered to for the restoration of the construction site and adjacent lands:

- * Ensure the entry and exit pits are cleaned of drilling fluids and the fluids are disposed of in an approved location.
- * Any disturbed areas adjacent to the watercourse will be seeded, covered with erosion control matting or restored as close as possible to preconstruction conditions.
- * Vegetation on watercourse banks will either remain in place or will be replaced following construction.
- * All seeding and vegetation replacement will be with native species to Ontario.
- * If post construction monitoring reveals erosion problems, remedial work will be undertaken as quickly as possible.
- * All debris/garbage shall be removed from construction site to an approved location.
- * If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.
- * Maintain effective sediment and erosion control measures until revegetation of disturbed areas is achieved.

Contingency Plan

If, for any reason, the attempt to cross this watercourse by means outlined above is not successful, the Environmental Planner will be contacted to discuss an alternative crossing method. It should be noted that under no circumstances shall an alternative crossing method be attempted for any crossing without prior notification. Any changes to this Stream Crossing Review may require permit amendments or governmental agency approval.

If unforeseen events cause the strategies set out in this plan to be insufficient or inappropriate to meet the objective, the company is expected to respond in a safe and timely manner with all reasonable measures to prevent, counteract or remedy any effects on fish or fish habitat that may result. DFO or CA is to be notified as soon as practical.

Spill reporting procedures established by MOE shall be used to report any unexpected discharge of silt or sediment or other deleterious substance at the water crossing. The spill/incident shall also be reported to the DFO or CA as soon as possible in these circumstances.

If DFO determines that long term damage to fish habitat has occurred due to failure of this plan to control sediment, a restoration plan will be developed by the company, in consultation with and approval from DFO for implementation by the company.

[illegible]

Appendix 4

Photographs



1. Proposed tie – in point at 14119 Norton Line, Thamesville (looking east)



2. Norton Line (looking east)



3. Knoll Road west of School House Line (looking east)



4. School House Line west of Centre Road (looking west)



5. School House Line at Centre Road (looking east)



6. Phase 2 watercourse crossing on River Line (looking east)

Summary of Comments

TO BE FILED WHEN RECEIVED

UNION GAS LIMITED PRINCE TOWNSHIP PROJECT

Contents

PROJECT SUMMARY	2
MARKET PROFILE	3
PROPOSED FACILITIES	5
PROJECT COSTS	5
ECONOMIC FEASIBILITY	5
DESIGN AND CONSTRUCTION	6
ENVIRONMENTAL MATTERS	8
LAND MATTERS.....	9

Schedules

Schedule 1	Map of Proposed Facilities
Schedule 2	Customer Attachment Forecast
Schedule 3	Letter of Support
Schedule 4	Schematic of Proposed Project
Schedule 5	Capital Costs by Year
Schedule 6	Project DCF Analysis
Schedule 7	DCF Analysis & Parameters
Schedule 8	Design and Pipeline Specifications
Schedule 9	Union's Standard Construction Methods
Schedule 10	Proposed Construction Schedule
Schedule 11	Environmental Protection Plan
Schedule 12	OPCC Review

PROJECT SUMMARY

1. Municipal Officials, Residents, and Business Owners in Prince Township [“Project Area”], in the District of Algoma, have requested natural gas service from Union Gas Limited [“Union”].
2. In order to meet the demands for natural gas in this area, Union is requesting pursuant to Section 90 (1) of the Ontario Energy Board Act, approval from the Ontario Energy Board [“OEB”] for Leave to Construct pipelines in Prince Township [“Project”]. Union is also requesting an order from the OEB pursuant to section 36 (1), as described in earlier sections of this evidence.
3. Union has identified a core area where construction of pipelines will take place: Town Line Road, Second Line W., Base Line Road, Airport Road, Gagnon Road, Walls Road, Deans Road, Mountainview Drive, Heywood Road, Douglas Drive, Ironside Drive, Pinder Drive and Harper Street.
4. In addition to this core area Union may also develop a local distribution network which would serve other residents in Prince Township. The future development would depend upon interest in natural gas service, constructability and availability of funds. These residents are not known at the time of filing. Detailed maps will be finalized prior to construction.
5. A map showing the location of Prince Township can be found at Schedule 1.
6. Union currently holds the Certificate of Public Convenience and Necessity (EB-2013-0108) and Franchise agreement (EB-2013-0107), for Prince Township in the District of Algoma.
7. The route of the Proposed Facilities was selected in order to optimize economic benefits and social features while minimizing environmental impacts.
8. If the Applications are approved, Union forecasts that 242 customers in the Project Area will have natural gas service by year 10 of the Project.

9. The total capital cost of the proposed facilities is approximately \$2,716,000.
10. The Project has a negative net present value ["NPV"] of (\$1,332,000) and a profitability index ["PI"] of 0.50.
11. An Environmental Protection Plan ["EPP"] for the Project has been prepared by Union's Environmental Planning Department. The comments of various provincial and municipal agencies and the public have been sought and considered in the development of the EPP. Union's standard construction procedures, combined with the appropriate supplemental mitigation measures recommended in the EPP, will be employed to address environmental and public concerns.
12. Construction of the Proposed Facilities for the Project is expected to begin in the spring of 2016 and continue through to November of 2016.

MARKET PROFILE

Community Profile

13. Prince Township is located to the west and north of the City of Sault Ste. Marie, near the Sault Ste. Marie airport. The Township is on the shores of Lake Superior and the St. Mary's River.
14. The Township has 370 residential dwellings and a population of 1031. The Township has several farms, and a significant amount of forested areas. The largest number of residents can be found in Gros Cap, which is located at the extreme west end of Second Line.
15. There are currently a total of 370 existing residential dwellings and 5 small and medium sized commercial customers in the Project Area which could potentially be served with natural gas.

Residential Survey

16. A telephone survey was completed for the Project Area. The survey informed residents and businesses about the Project, estimates of the cost to convert to natural gas, and information regarding a surcharge to contribute towards the cost of the Project. The survey also requested information pertaining to dwelling characteristics, use of dwelling, current fuel type and interest in converting to natural gas-fuelled appliances.
17. Of the 375 potential residential and commercial customers in the Project Area, 125 have completed the survey, either by mail or by telephone, representing a 33% response rate.

Customer Attachment Forecast

18. Union is forecasting a total of 237 residential and 5 small commercial customers will be attached by the tenth year of the Project as outlined in the customer attachment forecast in Schedule 2.
19. For the Top 3 box scores (extremely likely, very likely, and likely to convert), the results of the telephone survey described above indicate an 84% of the people surveyed are interested in obtaining natural gas service. The telephone survey provided residents information about the temporary expansion surcharge.
20. Based on experience of attachment rates with past projects, Union has taken a conservative approach and reduced the attachment forecast to 64% (extremely likely, very likely, 50% of likely) for the existing residential, small commercial, and medium commercial customers.
21. Union also asked participants of the survey, who were interested in converting, the timing of when they would attach, and 100% indicated they would do so in the first three years. Union has taken a conservative approach and have spread the attachments over ten years based upon historical average connection rates for Union's four past large projects.

22. Union has also reviewed the approved municipal plan and had discussions with municipal officials related to new residential attachments in the Project Area. It is expected that any new residences would attach to natural gas service and this has been included in the attachment forecast.
23. Union has received support from The Corporation of the Township of Prince. The letter of support for the Project is included in Schedule 3.

PROPOSED FACILITIES

24. As part of the core Project pipelines will be constructed on Town Line Road, Second Line W., Base Line Road, Airport Road, Gagnon Road, Walls Road, Deans Road, Mountainview Drive, Heywood Road, Douglas Drive, Ironside Drive, Pinder Drive and Harper Street. A schematic drawing showing the core Project is provided in Schedule 4.
25. In addition to this core area Union may also develop a local distribution network which would serve other residents in Prince Township. This future development would depend upon interest in natural gas service, constructability and availability of funds.

PROJECT COSTS

26. The total estimated cost for the Project is approximately \$2,716,000. This cost includes all pipeline costs of \$2,106,000 and the cost of services of \$610,000 for the first 10 years of the Project.
27. Estimates of the capital costs for the construction of the proposed pipeline facilities are provided in Schedule 5. The estimated cost covers all costs related to materials, construction and labour required to construct distribution mains, regulating stations, and environmental costs.

ECONOMIC FEASIBILITY

28. The Proposed Facilities are required in order to expand natural gas distribution to Prince

Township community.

29. A standalone Discounted Cash Flow (“DCF”) analysis was completed for the proposed expansion. Union has employed an economic feasibility test consistent with the Board’s recommendations in the E.B.O. 188 Report on Natural Gas System Expansion.
30. The DCF for Prince Township community can be found at Schedule 6. This Schedule indicates a Net Present Value (“NPV”) of (\$1,332,000) and Profitability Index (“PI”) of 0.50. The DCF is based on capital of \$2,716,000. The table below illustrates the proposed capital costs.

DCF Capital (\$000's)		1	2	3	4	5	6	7	8	9	10
Total											
Pipeline & Station Capital (1)	2,106	2,106									
Service , M&R Installation	610	172	150	52	37	30	37	32	37	32	30
Total	2,716	2,278	150	52	37	30	37	32	37	32	30

Notes

1. Refer to Schedule 5

31. The DCF shows the collection of the Temporary Expansion Surcharge (“TES”) and the Incremental Tax Equivalent (“ITE”) for a period of 4 years. Where the PI of a Community Expansion Project is less than 0.8 the TES and ITE shall have a minimum term of 4 years as described in Exhibit A, Tab 1, Section 4.3.
32. Schedule 7 provides the key inputs, parameters and assumptions used in completing the DCF analysis.

DESIGN AND CONSTRUCTION

33. The design and pipe specifications are outlined in Schedule 8. All the design specifications are in accordance with the *Ontario Regulations 210/01* under the *Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*. This is the regulation governing the installation of pipelines in the Province of Ontario.

34. All polyethylene pipe and fittings will be manufactured and certified in accordance with the *Canadian Standards Association B137.4-09 Polyethylene (PE) Piping systems for Gas Services*. The pipe specifications are designed to provide the maximum operating pressure of 550 kPa. The pipeline will be tested in accordance with the requirements of the Ontario Regulation.
35. The minimum depth of cover to the top of the pipe and pipe appurtenances will be in accordance with the requirements of *Clause 12.4.8 of the CSA Z662-11* for polyethylene piping. Additional depth will be provided to accommodate existing or planned underground facilities, or where greater depth of excavation is warranted.

Construction Procedures and Project Schedule

36. The Proposed Facilities will be constructed using Union's standard practices and procedures and will be in compliance with the mitigation measures identified in the Environmental Protection Plan ["EPP"]. Schedule 9 provides a summary of Union's standard construction methods. Union's construction procedures are continually updated and refined to minimize potential impacts to the lands and the public.
37. Material is readily available for the Project and Union foresees no problem in obtaining a contractor to complete the proposed construction. Construction contract documents will be prepared at a later date. The EPP will be provided to the contractor.
38. Schedule 10 provides the proposed construction schedule for the Project. Construction of the proposed facilities is expected to begin in the spring of 2016 and continue through to November 2016.
39. Approvals are pending from the Ministry of Natural Resources and Forestry, the Sault Ste Marie Regional Conservation Authority and Prince Township.

ENVIRONMENTAL MATTERS

40. An EPP for the proposed pipeline was prepared by Union's Environmental Planning Department. The EPP was prepared to meet the intent of the Board's document "*Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario*" [2011]. A copy of the EPP is provided as Schedule 11.
41. The objectives of the EPP are to:
- a) document existing environmental features;
 - b) identify agency, First Nation, Métis Nation of Ontario and public concerns;
 - c) identify potential environmental impacts as a result of construction;
 - d) present mitigation techniques to minimize environmental impacts; and
 - e) provide pipeline contractors and environmental inspectors involved in the construction of the pipeline with general and site-specific guidelines for environmental protection that supplement Union's construction specifications.
42. The EPP was prepared before the scope of the Project was finalized. As such, some areas shown in the EPP may not be included in the Project.
43. All pipelines will be constructed in the manner recommended and described in the Board document "*Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario*".
44. A copy of the EPP has been submitted to the Ontario Pipeline Coordinating Committee

("OPCC"), local municipalities government agencies, First Nations and the Métis Nation of Ontario. A summary of comments and Union's response will be provided in Schedule 12 as they are received.

45. There are fourteen watercourse crossings associated with this Project. Union will follow all permit conditions from the Regulating Agency.
46. When the Project is constructed, the most up-to-date construction specifications will be followed.
47. Union will ensure that the recommendations in the EPP, commitments and the conditions of approval are followed. An environmental inspector will be assigned to the project to ensure that all activities comply with all of the Board's conditions of approval.
48. The results of the EPP indicate that the environmental and socio-economic effects associated with construction of the project are generally short-term in nature and minimal. There are no significant cumulative effects as a result of this pipeline construction.

LAND MATTERS

49. All of the proposed pipelines will be located within road allowances. No permanent or temporary land rights will be required.

FIRST NATIONS AND MÉTIS CONSULTATION

50. Union has a long standing practice of consulting with Métis and First Nations, and has programs in place whereby Union works with them to ensure they are aware of Union's projects and have the opportunity to participate in both the planning and construction phases of the Project.
51. Union has an extensive data base and knowledge of First Nations and Métis organizations in Ontario and consults with the Tribal organizations and the data bases of the Ministry of Natural

Resources, Ministry of Aboriginal Affairs and Aboriginal Affairs and Northern Development

Canada to ensure consultation is carried out with the most appropriate groups.

52. Union has signed a General Relationship Agreement with the Métis Nation of Ontario which describes Union's commitments to the Métis when planning and constructing pipeline projects.

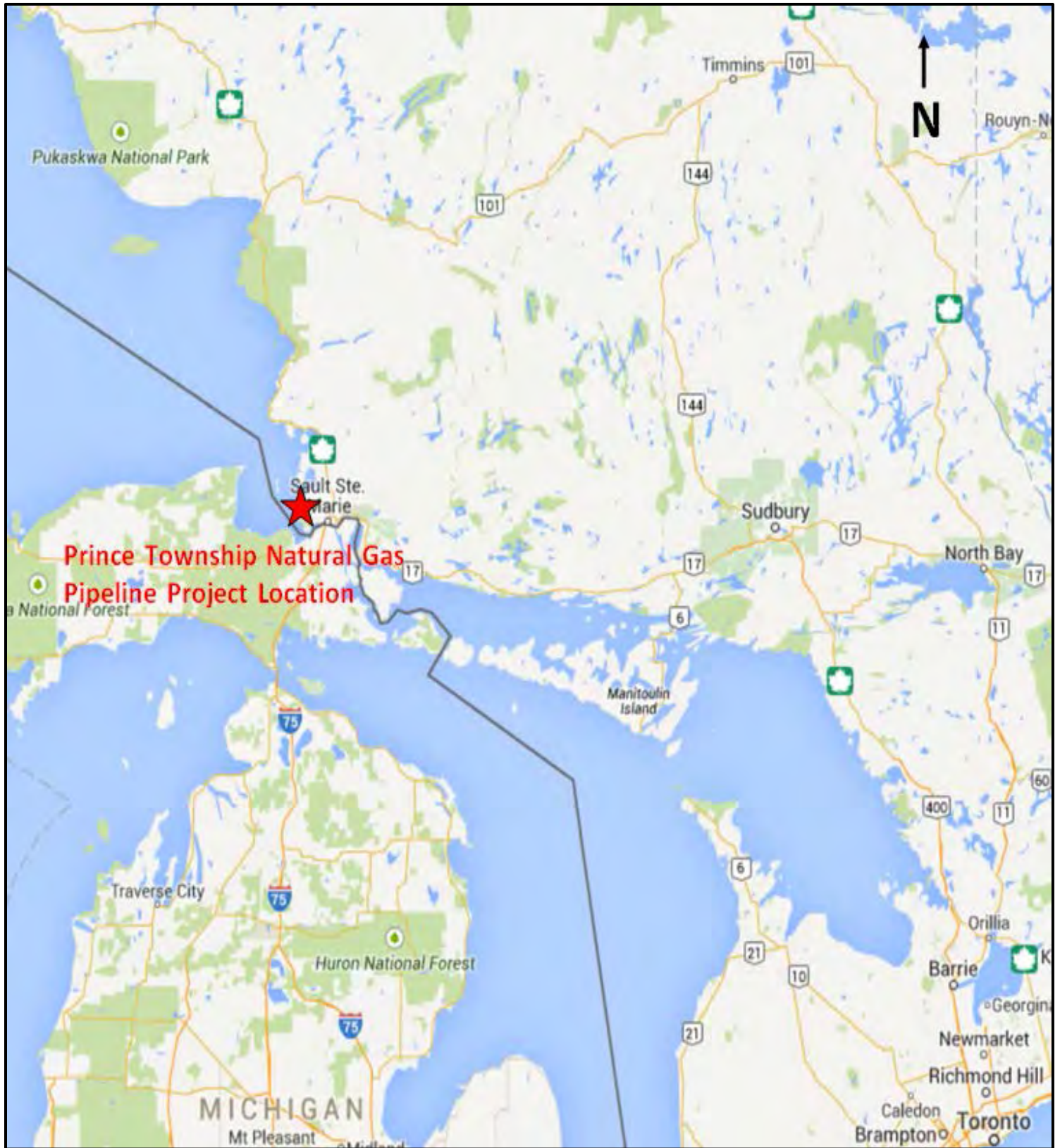
53. The following First Nations and Métis were notified regarding the Project.

Chief Dean Sayers	Batchewana First Nation
Chief Lyle Sayers	Garden River First Nation
President Kim Powley	Historical SSM Métis Council

54. Union continues to meet and consult with the First Nations and Métis organizations on the expansion of natural gas facilities in Prince Township.

55. During construction, Union has inspectors in the field who are available to First Nation's and Métis organization as a primary contact to discuss and review any issues that may arise during construction.

56. When Union completes the necessary archaeological assessments for the Project, Union will consult with and provide the result of the surveys to any First Nations or Métis upon their request.



Customer Additions	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Residential Conversion	64	57	21	15	12	15	13	15	13	12	237
Residential New											0
Multi Family Commercial											0
Small Commercial	3	2									5
Medium Commercial											0
Large Industrial Small											0
Industrial Medium											0
Industrial Large											0
											0
											0
Total Customers	67	59	21	15	12	15	13	15	13	12	242

Mayor: Ken Lamming

CAO/Administrator: Peggy Greco

Karen Trudel
New Business Project Coordinator, Construction and Growth
Union Gas Limited | A Spectra Energy Company
PO Box 4000 Station A
828 Falconbridge Road Sudbury ON P3A 4S3
Email: ktrudel@uniongas.com

April 29, 2015

Dear Ms. Trudel:

We understand that subject to favourable feasibility assessments currently being conducted, Union Gas will be filing a proposal with the Ontario Energy Board in the spring seeking approval to provide service to the residences and businesses, which are located in the Township of Prince. Our understanding is that the Union Gas application will include proposals for specific forms of regulatory flexibility or exemptions from current Ontario Energy Board guidelines that apply to extending natural gas service to new communities.

This letter will confirm that Prince Township Council and staff has reviewed key concepts that Union Gas expects to include in the filing with the Ontario energy Board, and that elected municipal representatives support those concepts, which are summarized below:

- The application of an additional temporary volumetric rate which would be applied as an additional line item to bills of customers who connect to the system installed as part of these projects for a period of up to 10 years, and which amounts to something in the range of \$500 per year for an average residential customer.
- Agreement by the municipality to provide a contribution to construction costs that equates to the value of any incremental property taxes or payments in lieu of taxes that the new system would generate over the same period as the volumetric rate noted above.
- A reduction in the economic feasibility thresholds that each project must meet before proceeding, to a profitability index below the current minimum of 0.8 in certain situations, conditional on municipal (or first nation) agreement to make contributions as outlined above. And related to this allowing expansion to new communities to proceed without their economic feasibility results being included in portfolio profitability indices in order to create capacity for the incremental capital investment required by the utility.
- Ability of the utility to earn their regulated rate of return on investment for all capital invested beginning in the year following which the investment is made.

Our municipal leaders believe that the public benefits of extending natural gas infrastructure to additional communities in Ontario should be a key consideration in addressing Union's proposals. These benefits include the annual energy savings our constituents would experience, reduced costs for our existing businesses, and remove a local economic barrier for our community.

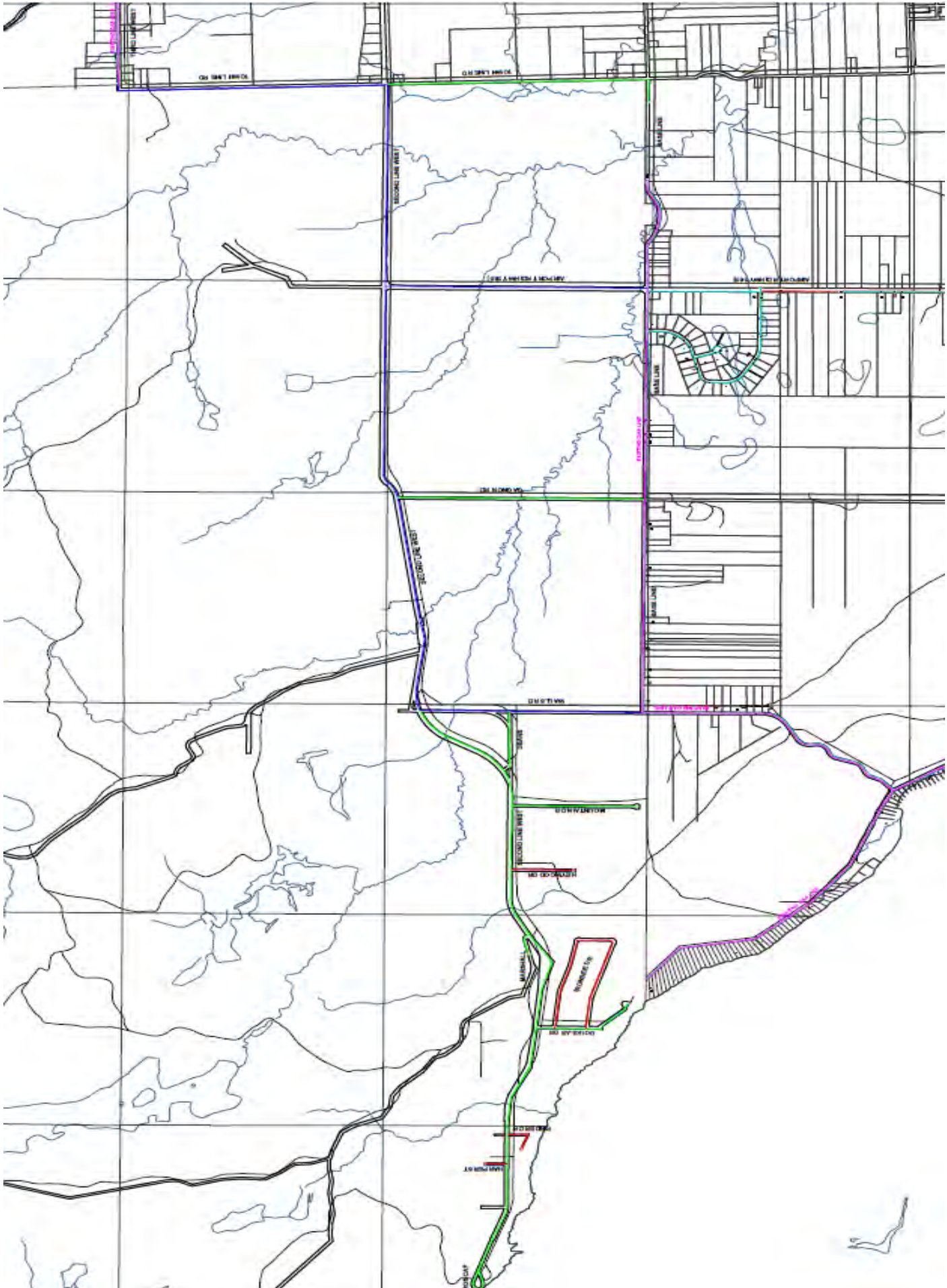
For these reasons we fully support the concepts that Union Gas will propose in their application.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ken Lamming', followed by a long horizontal line that ends in a small loop.

Ken Lamming,
Mayor, Prince Township

KL/pg



Prince Twp Costs

2016 Construction

Pipeline and Equipment

2250 m	NPS 1 1/4 PE	\$	4,230
10715 m	NPS 2 PE	\$	33,645
9485 m	NPS 4 PE	\$	109,457
	Fittings	\$	15,469
Sub Total		\$	162,801
Contingency (5%)		\$	8,140
Total		\$	170,941

Construction & Labour

Lay Price NPS 1 1/4 PE	\$	66,856
Lay Price NPS 2 PE	\$	617,259
Lay Price NPS 4 PE	\$	896,076
Overheads	\$	150,409
Inspection Labour	\$	11,000
Environmental Assessment	\$	50,000
Sub Total		\$ 1,791,600
Contingency (5%)		\$ 96,530
Total		\$ 1,888,130

Total Main Costs **\$ 2,059,071**

Stations **\$ 47,160**

Total Project Costs **\$ 2,106,231**

Prince Township

<u>Project Year</u>	<u>(\$000's)</u>
---------------------	------------------

<u>Project Year</u>	<u>(\$000's)</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>
<u>Cash Inflow</u>															
Revenue		16	46	65	73	80	86	92	99	105	111	114	114	114	114
Expenses:															
O & M Expense	(2)		(7)	(10)	(12)	(13)	(14)	(16)	(17)	(19)	(21)	(22)	(22)	(22)	(23)
Municipal Tax	(25)		(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
Income Tax	21		33	28	25	22	19	16	14	11	9	7	6	5	3
Temporary Expansion Surcharge (TES)	20		57	80	89	-	-	-	-	-	-	-	-	-	-
Incremental Tax Equivalent (ITE)	25		25	25	25	-	-	-	-	-	-	-	-	-	-
Net Cash Inflow	55		129	162	176	63	65	68	70	73	75	74	73	71	69

Cash Outflow

Incremental Capital	2,278	150	52	37	30	37	32	37	32	30	-	-	-
Change in Working Capital	0	0	0	0	0	0	0	0	0	0	0	0	0
Cash Outflow	2,278	150	52	37	30	37	32	37	32	30	0	0	0

Cumulative Net Present Value

Cash Inflow	53	173	316	464	514	564	613	662	709	756	800	841	879	914
Cash Outflow	2,278	2,420	2,468	2,500	2,525	2,554	2,578	2,604	2,626	2,645	2,645	2,645	2,645	2,645
NPV By Year	(2,224)	(2,248)	(2,152)	(2,036)	(2,010)	(1,990)	(1,965)	(1,943)	(1,917)	(1,890)	(1,845)	(1,805)	(1,766)	(1,731)

Project NPV

-1,332

Profitability Index

By Year PI	0.02	0.07	0.13	0.19	0.20	0.22	0.24	0.25	0.27	0.29	0.30	0.32	0.33	0.35
Project PI	0.50													

Prince Township

<u>Project Year</u>	(\$000's)
---------------------	-----------

<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>	<u>23</u>	<u>24</u>	<u>25</u>	<u>26</u>	<u>27</u>	<u>28</u>
114	114	114	114	114	114	111	109	109	109	109	109	109	109
(23)	(24)	(24)	(25)	(25)	(26)	(26)	(26)	(26)	(27)	(27)	(28)	(28)	(28)
(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
2	1	0	(1)	(2)	(2)	(2)	(3)	(3)	(4)	(5)	(5)	(6)	(6)
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
68	66	65	63	62	61	58	56	55	53	53	52	51	50

Cash Outflow

1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0

Cumulative Net Present Value

947	978	1,006	1,033	1,057	1,080	1,101	1,120	1,138	1,155	1,170	1,185	1,198	1,211
2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645
(1,698)	(1,668)	(1,639)	(1,613)	(1,588)	(1,565)	(1,544)	(1,525)	(1,507)	(1,491)	(1,475)	(1,461)	(1,447)	(1,435)

Project NPV

Profitability Index

	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.44	0.45	0.45	0.46
0.36													
0.37													
0.38													
0.39													
0.40													
0.41													
0.42													
0.43													
0.44													
0.45													
0.46													

Cash Inflow										
Revenue	109	109	109	109	109	109	109	109	109	109
Expenses:										
O & M Expense	(29)	(29)	(30)	(30)	(31)	(31)	(32)	(32)	(32)	(32)
Municipal Tax	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)	(25)
Income Tax	(6)	(7)	(7)	(7)	(8)	(8)	(8)	(9)	(9)	(10)
Temporary Expansion Surcharge (TES)	-	-	-	-	-	-	-	-	-	-
Incremental Tax Equivalent (ITE)	-	-	-	-	-	-	-	-	-	-
Net Cash Inflow	49	48	47	47	46	45	44	43	43	43

[illegible]

Cumulative Net Present Value											
Cash Inflow	1,223	1,234	1,244	1,254	1,263	1,272	1,279	1,287	1,294	1,301	1,307
Cash Outflow	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645	2,645
NPV By Year	(1,423)	(1,412)	(1,401)	(1,392)	(1,382)	(1,374)	(1,366)	(1,358)	(1,351)	(1,345)	(1,338)

Project NPV

[illegible]

Prince Township
(Project Specific DCF Analysis)
Stage 1 DCF - Listing of Key Input
Parameters, Values and Assumptions
(\$000'S)

Discounting Assumptions

Project Time Horizon

40 years commencing at facilities in-service date of
01 Sep 16

Discount Rate

Incremental after-tax weighted average
cost of capital of 5.10%

**Key DCF Input Parameters,
Values and Assumptions**

Net Cash Inflow:

Incremental Distribution Revenue:

General Service rates
 Temporary Expansion Surcharge (TES)
 Incremental Tax Equivalent (ITE)
 Term of TES and ITE

Approved per EB-2014-0356 Effective January 1, 2015
 \$0.23 / M3
 Estimated year 1 property tax
 4 years

Operating and Maintenance Expense

Estimated incremental cost

Municipal Tax

Estimated incremental cost

Income Tax Rate

26.5%

CCA Rates:

CCA Classes:
 Eligible Capital Expenditure (ECE)
 Class 51 (Distribution Mains)
 Class 51 (Distribution Services)
 Class 51 (Measuring & Regulating Equipment)

Declining balance depreciation rates by CCA class:
 7%
 6%
 6%
 6%

Cash Outflow:

Incremental Capital Costs Attributed

Refer to Schedule 5

Change in Working Capital

5.0513% applied to O&M

PRINCE TOWNSHIP DESIGN AND PIPE SPECIFICATIONS

POLYETHYLENE PIPING

Design Specifications

Design Factor	-	0.40
Maximum Operating Pressure	-	550 kPa
Test Medium	-	Air , Nitrogen, or Water
Minimum Test Pressure	-	770 kPa
Minimum Depth of Cover (General)	-	0.6 m
Minimum Depth of Cover (Road Crossings)	-	0.6 m
Minimum Depth of Cover (Water Crossings)	-	1.2 m

Pipe Specifications

Size	-	NPS 4
SDR	-	11
Description	-	C.S.A. Standard B137.4-09

Size	-	NPS 2
SDR	-	11
Description	-	C.S.A. Standard B137.4-09

Size	-	NPS 1 ¼
SDR	-	10
Description	-	C.S.A. Standard B137.4-09

GENERAL TECHNIQUES AND METHODS OF CONSTRUCTION

1. Union Gas Limited (“Union”) will provide its own inspection staff to enforce Union’s construction specifications and *Ontario Regulation 210/01 under the Technical Standards and Safety Act 2000, Oil and Gas Pipeline Systems*.
2. Pipeline construction is divided into several crews that create a mobile assembly line. Each crew performs a different function, with a finished product left behind when the last crew has completed its work.
3. Union’s contract specifications require the contractor to erect safety barricades, fences, signs or flashers, or to use flag persons as may be appropriate, around any excavation across or along a road.
4. It is Union’s policy to restore the areas affected by the construction of the pipeline to “as close to original condition” as possible. As a guide to show the “original condition” of the area, photos and/or a video will be taken before any work commences. When the clean up is completed, the approval of the landowner or appropriate government authority is obtained.
5. Construction of the pipeline includes the following activities:

Locating Running Line

6. Union establishes the location where the pipeline is to be installed (“the running line”). For pipelines within road allowances, the adjacent property lines are identified and the running line is set at a specified distance from the property line.

Stringing

7. The pipe is strung adjacent to the running line. The joints of pipe are laid end-to-end on supports that keep the pipe off the ground to prevent damage to the pipe coating.

Welding

8. The pipe is fused into manageable lengths.

Burying

9. Pipe may be buried using either the trench method or the trenchless method. All utilities that will be crossed or paralleled by the pipeline are located by the appropriate utility prior to installing the pipeline. Prior to trenching, all such utilities will be hand-located or hydro vacuumed.

Trench Method: Trenching is done by using a trenching machine or hoe excavator depending upon the ground conditions. Provisions are made to allow residents access to their property, as required. All drainage tiles that are cut during the trench excavation are flagged to signify that a repair is required. Next, the pipe is lowered into the trench. All defects in the coating are repaired before the pipe is lowered in. Next, if the soil that was excavated from the trench is suitable for backfill, it is backfilled. If the soil is not suitable for backfill (such as rock), it is hauled away and the trench is backfilled with suitable material such as sand. After the trench is backfilled, drainage tile is repaired.

Trenchless Method: Trenchless methods are alternate methods used to install pipelines under railways, roads, sidewalks, trees and lawns. There are two trenchless methods that could be used for the proposed pipeline, depending on the soil conditions, and the length and size of the installation. These methods are boring (auguring) and directional drilling.

Tie-Ins

10. The sections of pipelines that have been buried using either the trench or trenchless method are joined together (tied-in).

Cleaning and Testing

11. To complete the construction, the pipeline is cleaned, tested in accordance with Union's specifications.

Restoration

12. The final activity is the restoration. The work area is leveled, the sod is replaced in lawn areas and other grassed areas are re-seeded. Where required, concrete, asphalt and gravel are replaced to return the areas to as close to the original conditions as possible.

Prince Twp Expansion Pipeline Construction Schedule

Task Name	2015												2016											
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Environmental Assessments and Approvals																								
Engineering																								
Pre-Construction Survey																								
Material Acquisition																								
File Application																								
OEB Approval																								
Construction Survey																								
Construction and Testing																								
Clean-Up																								
In-Service																								

PRINCE TOWNSHIP NATURAL GAS PIPELINE PROJECT

ENVIRONMENTAL PROTECTION PLAN

**Prepared By: Union Gas Limited
Environmental Planning
May 2015**

TABLE OF CONTENTS

Prince Township Natural Gas Pipeline Project Environmental Protection Plan

		<u>Page No.</u>
1.0	Introduction	1
2.0	Project Background	2
3.0	Planning Process.....	3
	3.1 Key Activities	3
4.0	Consultation.....	4
5.0	Routing	4
	5.1 Routing Selection	4
6.0	Construction, Operation and Maintenance	5
	6.1 General Construction Practices	5
	6.2 Operation and Maintenance Practices	6
7.0	Potential Impacts and Mitigation.....	7
	7.1 General Environmental Features	7
	7.2 Mitigation Summary.....	9
8.0	Cumulative Impacts.....	9
9.0	Summary and Recommendations	10

Appendices

Appendix 1	Project Location Maps
Appendix 2	Table 1, Pipeline Construction - Mitigation Summary
Appendix 3	Generic Sediment Control Plan for Watercourse Crossings by Horizontal Directional Drill
Appendix 4	Photographs

Prince Township Natural Gas Pipeline Project
Environmental Protection Plan

1.0 **INTRODUCTION**

Union Gas has been bringing clean, reliable, and affordable natural gas service for more than a century to over 400 communities across Ontario and as part of its Community Expansion Program, is proposing to bring natural gas service to the residents and businesses in the community of Prince Township.

This Environmental Protection Plan (EPP) has been prepared to document a plan for the protection of the environment during construction of a natural gas pipeline system by Union Gas Limited (Union), to provide natural gas service to Prince Township.

Specifically this report will:

- Describe the proposed work necessary for the project;
- 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 public consultation opportunities.

Prince Township is located in the Algoma District immediately northwest of the City of Sault Ste. Marie, Ontario. Prince Township has an approximate population of 1000, and covers an area of 85.31 km². Mapping for the project can be found in Appendix 1.

The project will include constructing a lateral pipeline from three proposed tie-in points to the existing Union NPS (Nominal Pipe Size) 4 inch plastic pipeline system located at Third Line west and Town Line Road, Base Line at Airport Road, and at Base Line and Walls Road, in the City of Sault Ste. Marie to service the following locations in Prince Township:

- Town Line Road (Third Line W. to Base Line Rd.)
- Second Line W. (Town Line Rd. to end)
- Base Line Road (Town Line Rd. west for approximately 800 m)
- Airport Road (Second Line W. to Base Line Rd.)

Prince Township Natural Gas Pipeline Project Environmental Protection Plan

- Gagnon Road (Second Line W. to Base Line Rd.)
- Walls Road (Second Line W. to Base Line Rd.)
- Deans Road
- Mountainview Drive
- Heywood Road
- Douglas Drive
- Ironside Drive
- Pinder Drive
- Harper Street
- Prince Lake Road (1 house)

The lateral pipeline system will be approximately 22.3 kilometres in length consisting of 9.49 kilometres of NPS 4 inch plastic pipeline (NPS 4 PE piping), 10.57 kilometres of NPS 2 inch plastic pipeline (NPS 2 PE piping), and 2.25 kilometres of NPS 1 ¼ inch plastic pipeline (NPS 1 ¼ PE piping). A map identifying the running line is attached in Appendix 1.

The EPP defines the environmental features potentially affected by the proposed pipeline and documents the various environmental protection measures that will be implemented by Union during pipeline construction to reduce the impact on these features.

2.0 PROJECT BACKGROUND

Union and Prince Township have been looking to bring natural gas to the community for many years. In 2001, Union considered a proposal to provide natural gas service to residents and businesses along Base Line Road between Airport Road and Walls Road in Prince Township as Union served customers on the south side of Base Line Road in the City of Sault Ste. Marie, but the proposal was put on hold. Now, with Union's Community Expansion Program and high community interest, Union and Prince Township are looking again to bring natural gas to the community and are committed to working together to protect the environment throughout all stages of the project.

Prince Township Natural Gas Pipeline Project Environmental Protection Plan

Union is committed to working with Prince Township, the Sault Ste. Marie Region Conservation Authority (SSMRCA), Ministry of Natural Resources and Forestry (MNRF), Ministry of Tourism, Culture and Sport (MTCS), First Nations, the Métis Nation of Ontario and any other party that may have an interest in the project in order to ensure environmental protection and to secure all necessary permits or approvals.

An Archaeological Assessment and a Heritage Assessment will be completed prior to construction in accordance with the MTCS guidelines and a review for any species of concern will be conducted.

Once all approvals have been received for the project, Union will contact all people who will be directly affected by pipeline construction. If landowners have site specific concerns, Union will meet with them to discuss details relating to construction. A Union supervisor will be on site at all times during construction to deal with any questions that may arise.

Once the pipeline is in operation, Union will initiate an ongoing maintenance program to ensure the integrity of the pipeline.

3.0 PLANNING PROCESS

3.1 Key Activities

The following is a summary of the key activities for the development of the Prince Township Natural Gas Pipeline Project:

Project Initiation	February, 2015
Information Session	February, 2015
Finalize Environmental Protection Plan	April, 2015
Construction	Spring/Summer 2016
Pipeline In Service	Summer/Fall 2016
Post Construction Monitoring	Spring/Summer 2017

4.0 CONSULTATION

A community open house was held on February 25, 2015 to inform the residents of Prince Township of the benefits of natural gas, the approximate costs of converting to natural gas, and that natural gas service may be coming to their community. Approximately 120 homeowners, as well as the Mayor and two council members, attended the open house.

An Expression of Interest form, a Union Gas Information Sheet, and a link to the Union Gas – Residential website was also posted on Prince Township’s website to determine the level of interest in converting to natural gas and to provide the information presented at the open house. Currently, there are approximately 242 residents who own a home or business interested in converting to natural gas service, with approximately 373 homes/businesses available to convert to natural gas service.

Union held a conference call with the Mayor of Prince Township to outline the details of their proposal on April 13, 2015.

Union’s construction group will discuss the proposal with the local road authorities to ensure that any issues or concerns are addressed.

This Environmental Protection Plan will be included in Union’s Franchise and Certificate application, which will be made to the Ontario Energy Board. Copies of this report will be available to local citizens who request a copy.

Once OEB approval has been received, Union will contact all groups who will be directly affected by pipeline construction.

5.0 ROUTING

5.1 Route Selection

In determining the route for the pipeline, Union’s District Office looked for a route that offered the most natural gas connections. A route running along Second Line west provides the potential

Prince Township Natural Gas Pipeline Project Environmental Protection Plan

for the most natural gas connections as it is the central road in the Township and intersects with several other roads that are proposed to receive natural gas service. Along Second Line west, there are a number of residential and commercial properties including a community centre, museum, restaurant, and a general store and gas station.

Please see Appendix 1 for the preferred running line and Appendix 4 identifying a number of photos along the proposed running line.

6.0 CONSTRUCTION, OPERATION AND MAINTENANCE

6.1 General Construction Practices

Clearing and Grading

This prepares the right-of-way to allow the construction of the pipeline. Brush, trees and grass are cut or removed and the ground levelled.

Stringing

The pipe is strung next to the proposed pipeline location. The sections of pipe are laid end to end and set on supports that keep the pipe off the ground.

Trenching

To install the pipeline a trench will be dug. The trench is usually excavated using a backhoe. The width of the trench is approximately 0.5 m and the depth will be a minimum of 80 cm.

The excavator will dig the trench and place the spoil in a pile beside the trench. Once the trench is excavated, the pipeline will be installed and if the spoil is suitable, it will be placed back in the trench. Any unsuitable spoil will be removed from the site and disposed of in an appropriate manner.

A number of areas along the proposed route, such as watercourses, will be installed using horizontal directional drill (HDD).

Cleaning and Testing

To complete construction, the pipeline is cleaned and pressure tested in accordance with the Energy Act.

Prince Township Natural Gas Pipeline Project
Environmental Protection Plan

Restoration

It is Union's policy to restore the affected areas to "as close to original" condition as practicable. To ensure the quality of the restoration, pictures of the construction area will be taken before the work commences.

Road Crossings

It is proposed that all paved road crossings will be drilled. The procedure of drilling is essentially drilling a hole under the roadway, removing the auger and inserting the pipeline into the hole. To set the auger in place, sending and receiving pits or boring bays must be dug on either side of the road. The length of the crossing and the size of the pipe determine the size of the drilling equipment and bore bays.

In the event that it is not possible to drill the crossings, they will be open cut after discussions with the local roads authority. The public will be notified of any road closures. Union will attempt to maintain one lane of traffic at all times.

6.2 Operation and Maintenance Practices

Like any system, once the pipeline system is installed it has to be maintained and serviced on a regular basis. The following paragraphs will describe the most common work to be performed by Union personnel after the gas main has been installed.

Locates

Union provides a free locate service to any person or business who may be working near a pipeline. The pipeline locator is comprised of two parts: a transmitter and a receiver. To perform a locate, the transmitter is connected to the gas facility. The transmitter sends a small current through the facility, which is picked up by the receiver. The location of the pipeline is then marked using stakes or yellow paint. No excavation is required.

Leak Surveys

To ensure that there are no leaks in the system, a company representative or agent will "leak survey" the pipeline. The leak surveyor will walk along the gas main and carry a small machine that can detect natural gas. No excavation is required to complete the leak survey. However, if

leaks are detected, excavations will be required to repair the pipeline.

7.0 POTENTIAL IMPACTS AND MITIGATION

7.1 General Environmental Features

Watercourse Crossings

It will be necessary to cross a number of watercourses as part of the project.

Watercourses will be crossed above the existing culverts where depth of cover is adequate. Where this is not possible, watercourses will be crossed using the HDD drilling method and will be completed as per the Union Gas Limited and Fisheries and Oceans Canada – Ontario Great Lakes Area Agreement (DFO-OGLA/UGL AGREEMENT 2008). The crossing plans for HDD can be found in Appendix 3.

There are no in-stream timing windows associated HDD crossings and as according to the Agreement, there are no concerns with Species at Risk when watercourses are installed using the HDD method.

By drilling all watercourses, Union and Prince Township do not anticipate any impacts to watercourses.

Union will adhere to its agreement with the Department of Fisheries and Oceans Canada (DFO) and will acquire any necessary watercourse crossing permits from the MNRF and SSMRCA.

Tree Clearing

Tree clearing is currently not anticipated as part of the project.

Should tree clearing become necessary, it will be restricted from occurring between April 1 to August 31 in accordance with the Migratory Bird Convention Act and Migratory Bird Regulations, to avoid bird nests and eggs. If project scheduling requires the removal of trees or shrubs during the nesting period, a qualified ornithologist will be required to assess the area of

removal for evidence of nesting activity prior to removal to avoid any potential loss of active nests.

Cultural Heritage Resources

Union will retain the services of a licensed archaeological consultant to initiate a Stage I Archaeological Assessment and, if required, a Stage II Archaeological Assessment.

The survey will take place prior to construction in accordance with the MTCS guidelines to identify known or potential archaeological planning constraints within the project area. The survey will serve to confirm the presence of significant archaeological resources subject to potential impacts from the proposed project activities.

If deeply buried cultural remains are encountered during construction, all activities will be suspended and the archaeological consultant as well as the MTCS will be contacted to determine the appropriated course of action.

Union will retain a Heritage Specialist from an independent third party consultant to review the running line for potential cultural heritage landscapes and built heritage resources. Union will follow the recommendations of the Heritage Specialist.

As construction is proposed to remain entirely within in the disturbed portion of the road allowance, it is anticipated there will be no impacts to archaeological resources, built heritage resources or cultural heritage landscapes.

Water Wells

A hydrogeologist will review the area before construction. Based on this pre-construction assessment, a water well monitoring program will be implemented in areas where the hydrogeologist believes that pipeline construction may affect water wells. The hydrogeologist will also be available during construction in the event that there are complaints regarding water wells.

Prince Township Natural Gas Pipeline Project
Environmental Protection Plan

Species at Risk

Union will retain an independent third party consultant to review the running line for potential species at risk and determine if any species will be impacted by construction activities. If species at risk are identified, Union will work with the consultant and the appropriate governing agency to develop an appropriate mitigation plan.

Mitigation could include avoiding certain areas at sensitive times, directional drilling sensitive areas, or any measure that helps reduce potential impacts. Impacts to sensitive species are anticipated to be minor in nature as the pipeline will be located within the disturbed portion of the road allowance and many features will be directionally drilled.

7.2 Mitigation Summary

Table 1 located in Appendix 2 provides a general summary of the potential impacts, as well as the proposed mitigation measures that will be implemented during construction to minimize impacts on the environment. These measures will be implemented as well as the specific measures identified in section 7.1.

8.0 CUMULATIVE IMPACTS

The following section considers the cumulative effects of construction on the lands due to the project. The definition of cumulative effects used in this report is: “changes to the environment that are likely to result from a particular project in combination with other projects or activities that have been or will be carried out”.

It is expected that construction of the natural gas pipeline system in Prince Township will result in both minor positive and negative cumulative effects. There may be cumulative impacts between this pipeline and other projects in the area, although at this time Union and Prince Township are unaware of any projects that would interact with this proposal.

Additional noise, dust and traffic could be an issue should construction occur concurrently however, the benefits of having these facilities will, in the long term, be a positive impact. It is

not expected that any threshold or triggers will be exceeded since the construction of this pipeline is generally minor in nature and takes place in a previously disturbed area. Indirect benefits that are expected include increased development in the area with the availability of natural gas.

Constructing natural gas pipelines within road allowances that have been previously disturbed will focus, if not entirely limit, cumulative effects to a corridor planned and designated for infrastructure projects.

9.0 SUMMARY AND RECOMMENDATIONS

This Environmental Protection Plan describes a strategy for the protection of the Environment during the construction of a natural gas pipeline system in Prince Township. The plan has been developed by noting the environmental features in the area and the potential impacts of construction. The plan recommends a number of measures to reduce the impacts of the development.

It is recommended that the pipeline be monitored the year after construction to ensure that restoration measures were effective. If additional restoration measures are required, they should be completed as soon as possible. It is also recommended that landowners and tenants have access to Union Gas and Prince Township personnel in order to address any concerns that may arise during construction.

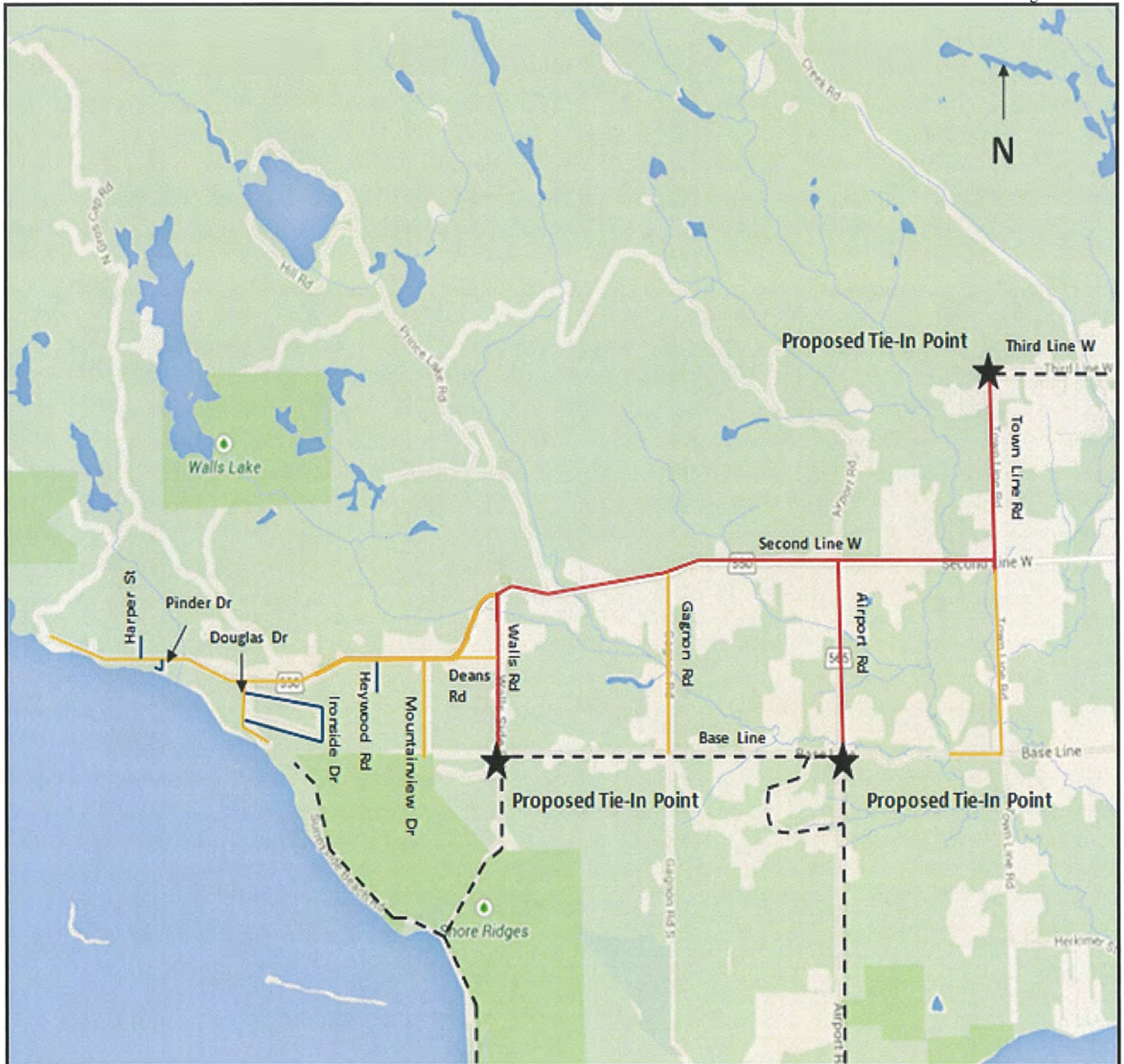
With the implementation of the recommended mitigation measures, and ongoing landowner and agency communication, the Prince Township Natural Gas Pipeline Project is not anticipated to have any significant adverse environmental or socio-economic effects.

Appendix 1

Project Location Maps



PRINCE TOWNSHIP PROPOSED PIPING



Legend

- NPS 4 inch plastic pipeline
- NPS 2 inch plastic pipeline
- NPS 1 1/4 inch plastic pipeline
- Existing NPS 4 inch plastic pipeline

Appendix 2

Table 1

Pipeline Construction – Mitigation Summary

**TABLE 1: MITIGATION SUMMARY
PIPELINE CONSTRUCTION**

Issue	Potential Impact	Proposed Mitigation
Paved Driveways and Roadways	Disruption to local traffic, landowners and tenants	<ul style="list-style-type: none"> • All paved roadways and driveways to be bored if practical. • If it is not possible to bore driveways and roads, steel plates will be on site to provide access to landowners and tenants. The Company will attempt to keep one lane of traffic open if possible. Traffic controls will be implemented as required. • Driveways will be repaired as soon as possible. • For driveways that require cutting, the excavation is to be filled with sand and granular material and compacted.
Gravel Driveways and Roadways	Disruption to landowners and tenants	<ul style="list-style-type: none"> • Roadways and driveways will be open cut. • Maintain one lane of traffic if possible. Implement traffic controls as required. • Steel plates will be kept on site to provide access to landowners and tenants. • Driveways will be repaired as soon as possible.
Traffic	Disruption to local citizens	<ul style="list-style-type: none"> • At least one lane of traffic will be maintained at all times. • Flag persons and warning devices will be used to notify traffic of the construction zone in accordance with Ministry of Transportation standards.
Public Safety	Public safety concerns	<ul style="list-style-type: none"> • Company inspectors to ensure public safety on construction site. • Ensure proper signage and flag persons if required.
Commercial/Retail Businesses and Recreational Areas	Disruption to businesses	<ul style="list-style-type: none"> • Ensure access at all times. • Restore area as soon as possible after construction. • Schedule construction with owners or managers, where necessary.
Construction Noise	Disturbance to landowners and tenants	<ul style="list-style-type: none"> • Construction to be carried out during daylight hours whenever possible. • Ensure equipment is properly muffled.
Nuisance Dust	Disruption to landowners and tenants.	<ul style="list-style-type: none"> • Control dust as required.
Construction Equipment	Disruption to landowners and tenants	<ul style="list-style-type: none"> • Equipment will be stored off road shoulders when not in use.
Landowner Concerns	Disruption to landowners and tenants	<ul style="list-style-type: none"> • The Company to provide landowners and tenants with the telephone numbers of supervisory personnel.
Fences	Disruption to landowners and tenants. Loss of control of animals inside fenced areas.	<ul style="list-style-type: none"> • Landowners and tenants will be contacted before any fences are disturbed. • Temporary fencing will be erected if requested by landowner or tenant. • Fences will be replaced as soon as possible.
Front Yards	Disruption to landowners and tenants.	<ul style="list-style-type: none"> • Landowners and tenants will be notified prior to construction. • Restore lawns and yards to original condition

TABLE 1: MITIGATION SUMMARY (Continued)

Issue	Potential Impact	Proposed Mitigation
Mailboxes	Disruption to Landowners	<ul style="list-style-type: none"> Notify landowners prior to construction. Restore as soon as possible. Provide temporary alternative if necessary.
Underground Utilities	Disruption of services	<ul style="list-style-type: none"> Obtain "locates" from all utilities. If utilities are damaged, repair as soon as possible.
Archaeology	Disturbance of heritage resources	<ul style="list-style-type: none"> An archaeological assessment will be completed prior to construction Stop construction if artifacts are encountered. Notify Ontario Ministry of Tourism, Culture and Sport.
Water Wells	Disruption to water supply	<ul style="list-style-type: none"> If water quality/quantity problems occur as a result of construction activities, the Company will supply potable water until the situation has been corrected. Conduct hydrogeology investigation and monitor wells as required.
Trees	Damage to Trees Disturbance to wildlife	<ul style="list-style-type: none"> No tree removal is anticipated If necessary to remove trees, alter alignment to avoid trees if possible. Pipeline to be located one metre from base of tree if possible. Trees to be removed outside of avian nesting window Discuss restoration plans with landowner.
Watercourse Crossings	Water quality concerns	<ul style="list-style-type: none"> Union will comply with all permit conditions. Union will adhere to all Company specifications and Department of Fisheries and Oceans endorsed Generic Sediment Control plans for watercourse crossings.
Natural Areas	Sedimentation run-off	<ul style="list-style-type: none"> Ensure sediment barriers such as straw bales/sediment fencing are used where there is a potential for run-off.
Vegetative Cover	Loss of vegetative cover leading to soil erosion	<ul style="list-style-type: none"> Restore cover by means of seeding or hydro-seeding as soon as possible.
Soils: Erosion	Introduction of sediment/ silt to adjacent lands	<ul style="list-style-type: none"> Restore disturbed soils as soon as possible after construction.
Road Side Ditches	Water quality concerns	<ul style="list-style-type: none"> Ensure ditches are returned to pre-construction condition as quickly as possible. Install rock rip rap/straw bale check dams as required.
Spills	Public safety issue	<ul style="list-style-type: none"> Ensure the Ministry of Environment and Climate Change is notified, as per spill procedure. Clean up spilled material.
Contaminated Soils	Dealing with contaminated materials Public safety issue	<ul style="list-style-type: none"> No sites are anticipated as a result of this proposal however should suspect soils be uncovered, work should stop immediately and the Union Gas Environmental Department contacted. Clean up contaminated material following Company and MOECC procedures.
Cemeteries	Disturbance to unmarked grave sites and disruptive to services.	<ul style="list-style-type: none"> Confirm location of all cemeteries with Prince Township. Stop construction if suspect material encountered and immediately notify Environmental Planner. Suspend construction near cemeteries during services.
Site Restoration	Disturbance to public and private properties	<ul style="list-style-type: none"> Construction area to be restored as soon as possible upon completion of pipe installation.

Appendix 3

Generic Sediment Control Plan for Watercourse Crossings by Horizontal Directional Drill

Appendix 4

Photographs



1. Second Line west and Airport Road (looking west)



2. Watercourse crossing on Gagnon Road (looking south)



3. Walls Road north of Base Line (looking north)



4. Second Line west at Pinder Drive (looking west)



5. Second Line west, west of Harper Street (looking west)



6. End of Second Line west (looking west)

Summary of Comments

TO BE FILED WHEN RECEIVED

1 **SMALL MAIN EXTENSION PROJECT PROPOSAL**

2 Union is proposing a volumetric based Temporary Connection Surcharge (“TCS”) for projects
3 that do not meet the definition of a Community Expansion Project and do not qualify for reduced
4 economic feasibility thresholds. This proposal in response to concerns expressed by the Ontario
5 Federation of Agriculture (“OFA”) about the economic barriers to smaller scale system
6 expansions that are similar to those faced for community expansion projects. In many cases the
7 degree of CIAC required from customers to make these smaller scale line extension projects or
8 commercial attachments feasible presents a significant financial barrier for a potential customer.

9
10 **1. SMALL MAIN EXTENSION PROPOSAL**

11 Temporary Connection Surcharge

12 Union is proposing a volumetric based TCS that is similar to the TES proposed in Tab 1. The
13 TCS available provides potential customers with a mechanism to pay their project
14 contribution funded from their annual energy savings. The OFA supports this proposal as
15 indicated in their May 19, 2015 letter to Union, filed at Appendix O.

16
17 The TCS would appear to customers as an extra line item on each monthly bill, labelled
18 “*Temporary Connection Surcharge*”. Where applicable, potential customers will be informed
19 of the details of this charge at the time their application for service is made. For customers
20 who wish to equalize their monthly payments, Union’s equal billing plan will be extended to
21 the TES surcharge.

1 Applicability

2 Union proposes that the TCS be available for small system main extensions involving fewer
3 than 50 potential customers, or for commercial and industrial attachments, where a financial
4 contribution in excess of \$1,000 is required to make attachment feasible. Union proposes that
5 the TCS be available to general service customers (rates 01, 10, M1, M2) only. Customers
6 will have a choice of using the TCS mechanism or paying an up-front CIAC in line with past
7 practice.

8
9 Union is not proposing that the TCS be made available to contract customers (Rates M4, M5,
10 M7, T1, T2, 20, 100). Contract customers can elect other methodologies to make required
11 financial contributions to a project over an extended time period. For example, a contract
12 customer can elect to sign a longer contract term, or contract for a higher minimum annual
13 volume (“MAV”) and pay the associated costs if annual consumption is below their MAV
14 each year.

15
16 Rate

17 Union proposes the TCS rate be set at \$0.23 per cubic meter for applicable general service
18 customers. The rationale for this is similar to that for the TES as proposed in Tab 1.

1 Term

2 The term of the TCS would be the same for every customer who connects to a system
3 installed for a specific project. The term would vary from project to project based on the
4 economic viability of each project. Union proposes that the maximum time period to be used
5 for any given project be limited to 10 years from the time gas is introduced. For example, the
6 maximum term of one project may be six years, and for another project, 10 years. At the end
7 of the term, every customer in the specific project area would see the TCS terminated.

8
9 If the maximum 10-year term for TCS does not enable a project to meet the minimum PI
10 requirement of 1.0, any residual financial support necessary will be required in the form of
11 CIAC.

12
13 To determine the term for a specific project, Union will determine the required contribution
14 from this mechanism for the project to achieve a minimum PI of 1.0, and that in combination
15 with the committed attachments and volumes would determine the maximum number of
16 months the TCS would be applied.

17
18 Union is not requesting the net revenue requirement associated with non community
19 expansion projects be included in capital pass through mechanism. The net revenue
20 requirement associated with these projects will be included in rates at the next rebasing
21 proceeding. Consistent with this approach, any customer contributions received will not be

1 included as part of a deferral variance account. During the remainder of the IRM term, any
2 contributions received from these projects will be reported as utility revenue and be subject
3 to earnings sharing mechanism.

May 19, 2015

Mr. Jeff Okrucky,
Director Distribution Marketing
Union Gas Limited
P.O. Box 2001, 50 Keil Drive North
Chatham, ON
N7M 5M1

Via e-mail: jokrucky@uniongas.com

Re: Proposal for Expansion of Gas Services to Six Rural Communities

Dear Mr. Okrucky:

The Ontario Federation of Agriculture (OFA) understands that, subject to favourable economic assessments currently being finalized, Union Gas will be filing a proposal with the Ontario Energy Board in the near future seeking approval to extend the natural gas system to several communities. Our understanding is that your application will include proposals for specific forms of regulatory flexibility or exemptions from current Ontario Energy Board guidelines that apply to extending natural gas service to new communities.

OFA appreciates the opportunity to have reviewed key concepts you intend to include in the filing and supports those concepts, which include:

- The application of an additional temporary volumetric rate, applied as a line item to bills of customers who connect to the system installed as part of Community Expansion Projects for a period of up to 10 years, priced at 23 cents per cubic metre.
- The application of a second temporary volumetric rate identical to that noted above, but applicable to business customers attaching to existing mains, or to small system extension projects that do not meet the definition of a Community Expansion Project.
- Agreement by the municipality to provide a contribution to construction costs that equates to the value of any incremental property taxes or payments in lieu of taxes that the new system would generate over the same period as the volumetric rate noted above.
- A reduction in the economic feasibility threshold that each Community Expansion Project must meet before proceeding, to a profitability index of as low as 0.6 in certain situations, conditional on municipal agreement to make contributions as outlined above. And related to this a reduction in portfolio profitability indices to 0.9 in order to create portfolio capacity for the incremental capital investment required by the utility.



- Ability of the utility to earn their regulated rate of return on investment for all Community Expansion Project capital invested beginning in the year following which the investment is made.

OFA believes that the public benefits of extending natural gas infrastructure to farming operations and to additional communities in Ontario are significant and are a key consideration in addressing Union's proposals. These benefits include the annual energy savings farmers and rural residents would experience, along with removal of a local economic barrier for rural communities.

We are confident that the proposed projects will reduce costs at existing farms in the project areas and allow still more farms to move into more profitable forms of farming that rely on low cost energy. It will also enable communities to attract new businesses. Gas has been the low cost fuel of choice for over 25 years and we believe gas will continue to be the economic choice.

For these reasons OFA supports the concepts that Union will propose in their application.

Sincerely,

A handwritten signature in black ink, appearing to read "Don McCabe", is positioned above the printed name.

Don McCabe
President