

EB-2016-0004

COMPENDIUM OF DOCUMENTS

of the Municipalities of Kincardine, Arran-Elderslie and the Township of Huron-
Kinloss (“South Bruce”)

CROSS-EXAMINATION OF GREENFIELD ETHANOL

May 9, 2016

EVIDENCE OF GREENFIELD SPECIALTY ALCOHOLS

INTRODUCTION

1. My name is John Creighton. I am the Managing Director, Logistics, of GreenField Specialty Alcohols Inc. (**GreenField**). This evidence pertains to, and is intended to assist the Ontario Energy Board (the **Board**) in, its consideration of Issues 5, 6, 9, 10, and 11 of the final Board Issues List.
2. GreenField is Canada's leading specialty alcohols producer, with a focus on corn-based bulk industrial alcohol, packaged alcohol, fuel ethanol, and associated agricultural co-products. GreenField has a leading share of the industrial alcohol market and is also the largest ethanol producer in Canada, with an export business in grain neutral spirits (alcohol containing 95% alcohol by volume, or 190-proof). GreenField exports its products worldwide. Part of an important industry in Ontario, GreenField requires access to low-cost natural gas in order to remain competitive in the world market, as energy costs are one of its highest input costs.
3. GreenField is the owner and operator of the Tiverton Industrial Alcohol distillery located in the Bruce Energy Centre in the Municipality of Kincardine (the **Tiverton Plant**). The Tiverton Plant produces 44 different products, primarily high-quality industrial- and beverage-grade alcohols that are shipped throughout Canada, the U.S., and around the world. The Tiverton Plant has 40 full-time and 4 part-time employees, as well as 10 contract drivers for corn, distillers grain, alcohol and compressed natural gas (**CNG**) transportation services. The Tiverton Plant is also serviced by 15 various other types of contractors annually and at least 150 suppliers of goods and services. In total, the Tiverton Plant provides approximately 67 person-years of employment per year. The Tiverton Plant has a very positive economic

impact on the local community and purchases 2.7 million bushels of locally-produced corn, valued at approximately \$14 million per year. This very high corn demand helps strengthen the price of corn in this region and also supplies 56,000 tonnes of wet distillers grains or animal feed to the surrounding community.

4. In addition to the people GreenField employs at the Tiverton Plant, it is active in the community. GreenField provides significant financial and other support to many local groups, including (but not limited to) Bluewater Summer Playhouse, Kincardine Fish Derby, Chantry Fish Derby, Women's House of Bruce County, Pine River Watershed Initiative, Kincardine Minor Hockey, Tiverton Minor Sports, Ripley Agricultural Society, Bruce County 4H Association and the Hamilton Hospital Toy Drive.

THE TIVERTON PLANT'S ENERGY CONTEXT

5. The Tiverton Plant commenced operations in 1999. GreenField's decision to locate it at the Bruce Energy Centre near Bruce Power was, in part, because of the attractive, low-cost-energy supply of steam from the (then) Ontario Hydro heavy water plant. The steam supply was part of an initiative by the Ontario government to help diversify industry adjacent to the nuclear plant. A number of industries built plants in the Bruce Energy Centre in response to this initiative. When that plant closed in 2004, Bruce Power built a bunker-fired steam plant and continued to supply energy, but with the rising price of oil (and bunker), the resulting cost of steam began to strain the economics of keeping the Tiverton Plant operational. GreenField managed to reduced its energy cost in 2012 by building a gas compressor station in Mount Forest, Ontario and trucking CNG to Tiverton. As a result, in 2013 a contract was signed with Bruce Power to provide lower-cost steam produced from CNG and allow them to decommission their bunker-fired steam plant. While this allowed GreenField to

slow down its rising energy costs, GreenField has always seen the CNG system to be a temporary operation until a lower-cost gas pipeline could be built to the region to provide a more competitive supply of natural gas. The Tiverton Plant needs such a pipeline to compete in the world market.

6. Industrial alcohol plants, such as the Tiverton Plant, are energy intensive. GreenField is a major industrial natural gas customer, with demand from the Tiverton Plant representing approximately 50% of the demand for natural gas in the Kincardine, Arran-Elderslie, Huron-Kinloss service area. Energy costs remain the second-highest input cost for the Tiverton Plant after corn purchases and are an important focus for GreenField to improve its competitive position in the North American market.

THE CHANGING ENERGY CONTEXT

7. GreenField, like other industrial customers, continues to optimize its business and maximize efficiencies in the context of a very rapidly-changing energy sector. The plethora of energy supply and transportation changes resulting from the shale gas revolution and the transition to a lower-carbon economy through the implementation of a greenhouse gas (GHG) cap-and-trade system are just two of the central changes that industrial customers, such as GreenField, are navigating and making strategic business decisions around. GreenField anticipates that the recently introduced cap-and-trade legislation and related regulation will both increase natural gas costs and GreenField's own direct operating costs. It also presents new economic opportunities for alternative energy sources such as ethanol. In light of these changes, GreenField hopes to evaluate and consider its lowest-cost and lower-GHG energy alternatives on a regular basis. As a result, both the cost (rate) and term (time commitment) of any natural gas pipeline service contract are very relevant to GreenField

and the efficient operation of its business. Specifically, higher-rate, long-term contracts are not consistent with our goals of maximizing efficiency while moving toward a lower-carbon economy.

8. GreenField requires a reasonable combination of an attractive rate and term to facilitate its economically-efficient transition to contracting for its natural gas through a pipeline. This transition will contribute to the move to a lower-carbon economy in a cost-effective manner and help GreenField compete in a global marketplace that puts Northern industrial customers on a level natural gas playing field with their Southern competitors.

NORTHERN AND REMOTE NATURAL GAS EXPANSION

9. GreenField fully supports the subsidization of natural gas distribution system expansion to rural and remote communities. Natural gas distribution system expansion generally should be subsidized so Northern communities and industries are not disadvantaged by geography and can remain competitive. Various models for subsidizing or charging for community expansions have been proposed, with varying impacts on new customers in the proposed franchise and existing customers of the incumbent gas utilities. While a model that includes municipal and existing customer subsidization is preferable to provide for the historically-disadvantaged communities that have not had natural gas service, the ultimate model must ensure that there is both a cost and GHG emissions benefit from the service relative to existing energy alternatives. For GreenField, this means that the cost and terms of pipeline natural gas must be less costly than and at least as flexible as its current CNG arrangements. Any change must make financial sense for GreenField and other large industrial customers.

THE PROCESS: COMPETITIVE, TRANSPARENT, CUSTOMER FOCUSED

10. GreenField and other remote customers' needs may only truly be met through an open, transparent process for expansion of natural gas distribution systems that is focused on customers. Such a process is consistent with and will facilitate the stated goals of both the Minister and the Board in facilitating customer choice in energy service for Northern and remote communities. While competitive methods may facilitate efficient choices for customers, they do not guarantee it. In this regard, GreenField would urge the Board to put the customer first and ensure that the resulting process does not facilitate competition merely for the sake of competition, but rather as a means of achieving true and real customer benefit in the cost and term of the service. To this end, it is integral that any generic process to assess rural and remote connections and the natural gas supply to them includes major customers such as GreenField. Processes that exclude customers and do not reflect their needs are likely to ultimately result in stranded or inefficient assets.
11. Ultimate ratemaking must make sense in a dynamic financial context for major industrial customers, both in terms of the term that they are required to adhere to and the rate paid over that term. As such, ratemaking for new rural and remote connections should be done in line with ratemaking principles currently in use. Any bid process must include meaningful disclosure of the financial components of the pipeline and the resulting proposed tariffs, including all related assumptions. Major customers cannot be burdened with uneconomic terms and rates.
12. GreenField supports some level of subsidization to ensure fair access to natural gas for Northern and remote customers. This subsidy could include, among other methods, a capital contribution from the government, some at-risk component offered by the project sponsor, or

cross-subsidization from an incumbent utility's existing customer base. While the construction of many rural or remote pipelines has been subsidized by the government, the process for deciding subsidy eligibility has been conducted in an *ad hoc* manner and should be regularized.

13. In conclusion, GreenField is generally supportive of changes to the Board's EBO 188 methods and criteria in order to allow for subsidization for Northern and remote community connections. However, the Board should mandate a process for considering such connections that is competitive, open, transparent and both inclusive and reflective of major customers needs. The resulting connections and rates should provide customers with lower cost, efficient term energy alternatives.

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.

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Intentionally Deleted

Kincardine and Area, Proposed Natural Gas Pipeline Expansion Project

Updated - Internal Report to the Kincardine Group

Union Gas Limited

March, 2012

Executive Summary

In response to a request from the Municipalities of Kincardine, Arran Elderslie and Huron Kinloss and Local Industry, (Kincardine Group), Union Gas undertook an assessment to determine the optimal pipeline design to service these potential customer groups.

Union Gas is a major Canadian natural gas storage, transmission and distribution company based in Ontario. Union Gas serves over 1.3 million residential, commercial and industrial customers in more than 400 communities across Northern, Southwestern and Eastern Ontario.

The Municipalities of Kincardine, Arran Elderslie and Huron Kinloss et al are the largest communities in Southwestern Ontario that are not serviced by Union Gas. The proposed Kincardine and Area Natural Gas Pipeline Expansion Project (the “Project”) will service the communities of Chesley, Paisley, Tiverton, Kincardine, Point Clarke & Inverhuron (the “Owen Sound Communities”), the communities of Ripley and Lucknow (the “Hensall Communities”) and 5 major industrial sites: Greenfield Ethanol, Bruce Power, Ontario Power Generation, Canadian Agra located in the Bruce Energy Centre, and Paisley Brick and Tile located in Paisley (the “Industrials”).

Union Gas proposes to service the aforementioned Communities and Industrial Partners by means of two separate pipelines.

- The Owen Sound Communities and the Industrials are designed to be serviced off the Owen Sound Line near Dornoch.
- The Hensall Communities are designed to be serviced off the Hensall Line out of Wingham.

The overall ultimate transmission pipeline design for the Owen Sound Communities and the Industrials are to be serviced in part by an NPS 8” pipeline at a pressure of 4660 kPa. The pipeline will start from a take off point north of Dornoch running in a general westerly direction to service Chesley and Paisley en route to a geographic point north of Tiverton where the pipeline is to branch into two smaller pipelines. The first leg of the pipeline measures approximately 57 km in distance.

The first branch will be sized at NPS 6” pipeline, without reduction in pressure, and travel from the branch tee in a westerly direction to the Bruce Energy Centre (BEC) to service the Industrials located within the BEC. The running distance measures approximately 5 km. The second branch will be sized at NPS 6” pipeline, without reduction in pressure, and travel in a southerly direction to Tiverton en route to Kincardine. The running distance measures approximately 15 km. The approximate cost for this transmission and distribution pipeline is estimated to be \$ 75,888,262 with a projected contribution from Union Gas of \$9,368,886 resulting in an aid to construct requirement of \$66,519,376 from the Owen Sound Communities.

The Owen Sound Communities may wish to consider a phased-in implementation scenario. This option considers constructing a pipeline that is ready to support the industrial loads immediately and the town attachments when funding becomes secured, at a later date.

This pipeline would run from the take-off point to the BEC to service the Industrials only (62km), with a 57 km section of the pipeline (from the take-off to the branch tee) being up-sized to NPS 8.

The approximate cost for this pipeline is estimated to be \$34,115,354 with a projected contribution from Union Gas of \$1,243,070 resulting in an aid to construct of \$32,872,284.

The overall ultimate design for the Hensall Communities are to be serviced by an NPS 8” transmission pipeline at a pressure of 3450 kPa starting from a take off point west of Wingham. The pipeline will travel westward to service the community of Lucknow and then travel in a north westerly fashion to reach the community of Ripley. The approximate cost for this pipeline is estimated to be \$21,012,364 with a projected contribution from Union Gas of \$815,920 resulting in an aid to construct requirement of \$20,196,444 from the Hensall Communities.

Industrial Loads

Union Gas worked directly with the Industrials to determine peak day/hourly loads, annual load forecast, pressure requirements and other operating parameters to determine the optimum system design and appropriate rate structure, Table 9. Note: Future regulatory initiatives will require signed agreements confirming contractual commitments.

Table 9 Industrial Load Profiles

Customer Information	10*3 Estimated Annual Volume	Rate	m3 Peak Hour	m3 Contracted Minimum Annual Volume
GreenField	13,172	T-1 firm	1,855	9,220,000
Bruce Power	-	n/a	-	-
OPG	437	M2	-	437,000
OPG Nuclear Waste Mgmt	945	M4	350	700,800
Paisley Brick	830	M4	350	700,800
Canadian Agra	4,500	M5	4,000	4,500,000

Pipeline Engineering and Design

Using the above residential, commercial and industrial customer attachments and load profile assumptions Union Gas proceeded to model the Project pipe sizing, lengths and running lines. The proposed running lines and pipe sizes for both the transmission and distribution pipes were verified and determined to be the most proficient design at the lowest cost possible while maximizing economic benefit.

The distribution and transmission models were based on a peak gas usage hour on a 44 degree day. A 44 degree day is a standard used for Union Gas South distribution models as a peak winter day, based on 44 degrees below 18°C. The pipes in the distribution model were loaded based on the services that would be located along that pipe. When modeling the distribution system, it was assumed the transmission system would be able to provide adequate pressure at the inlet to the communities' distribution station.

Several assumptions were made in determining the amount of gas drawn from the proposed system. The model is based on a peak usage hour on a winter day. A factor of 1.56 m³/hr was