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January 11, 2018

VIA RESS AND COURIER

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

**Re: EPCOR Southern Bruce Gas Inc. Interrogatories
South Bruce Expansion CIP Proposals EB-2016-0137 | EB-2016-0138 | EB-2016-0139**

Pursuant to Procedural Order No. 9, please find enclosed EPCOR Southern Bruce Gas Inc.'s response to interrogatories.

If you require any further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Britt Tan", with a stylized flourish extending to the right.

Britt Tan
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EPCOR SOUTHERN BRUCE GAS INC.

EB-2016-0137 | EB-2016-0138 | EB-2016-0139

**RESPONSES TO INTERROGATORIES
South Bruce Expansion Project**

Procedural Order No. 9

Filed: January 11, 2018

Interrogatory #1

Customer Attachments and Volumes

1. Ref: EPCOR’s CIP Application / Schedule D / Table D1

Preamble:

EPCOR provided a ten year forecast of customer attachments by customer class.

Question:

- a) What are EPCOR’s assumptions regarding total market size for each customer class?
- b) Please provide the customer attachment rates used in your original bid and the percentage breakdown between residential, commercial, industrial and agricultural customers (as applicable in your original bid).
- c) Please provide separate counts over the 10-year period for the forecast agricultural and large industrial customer attachments. For industrial customers, please provide your assumed:
 - i. number of industrial customers,
 - ii. number of agricultural customers, and
 - iii. average volume for industrial customers.

Response to Interrogatory #1(a):

EPCOR’s assumptions regarding total market size for each customer class are as follows:

Table 1(a)
 Total Market Size

#	Customer Type	Total Market Size
1	Existing Residential	7,250
2	New Residential	781
3	Subtotal	8,031
4	Small Commercial	554
5	Medium Commercial	107
6	Large Commercial	28
7	Subtotal	688
8	Small Agricultural	7
9	Industrial and Large Agricultural	13
10	Subtotal	20
11	Grand Total	8,739

Response to Interrogatory #1(b):

EPCOR’s customer attachment rates used in its original bid and the percentage breakdown between residential, commercial, industrial and agricultural customers (as applicable in the original bid) are as follows:

Table 1(b)
 Customer Attachment Rates

#	Customer Type	Attachment Rate	Percentage of Total Connections
1	Residential	60%	91.28%
2	Commercial	65%	8.47%
3	Industrial	100%	0.06%
4	Agricultural	59%	0.19%

Response to Interrogatory #1(c):

EPCOR counts over the 10-year period for the forecast agricultural and large industrial customer attachments are as follows:

Table 1(c)i/ii
 Number of Industrial and Agricultural Customers

#	Customer Type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1	Industrial	3	3	3	3	3	3	3	3	3	3
2	Agricultural	1	2	6	9	10	10	10	10	10	10

Table 1(c)iii
 Average Capacity Volume per Industrial Customer (10³m³)

#	Customer Type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1	Industrial	1,819	10,915	10,915	10,915	10,915	10,915	10,915	10,915	10,915	10,915

Interrogatory #2

Metrics

2. Ref: EPCOR's CIP Application / Schedule D / Tables D1 and D3, Tab 2 / p. 6, Tab 5
/ p. 18

Preamble:

EPCOR provided aggregate annual forecast volumes for its large volume contract customers and calculated its CIP criteria accordingly. EPCOR forecasted attaching 13 out of a total market of 20 potential industrial and large agricultural customers (65%) in the South Bruce area, 4,818 out of a total market of 8,301 potential residential customers (around 60%) and 447 out of a total market of 688 potential commercial customers (around 65%).

Questions:

- a) Using the information provided in the CIP proposal, calculate and provide the following metrics.
 - i. NPV of 10-year Revenue Requirement per Metre of Pipe (\$/m)
 - ii. Average Number of Customers per Kilometer (customers/km)
 - iii. Cumulative 10-yr Revenue Requirement per Unit of Volume (\$/m³)
 - b) Using an annual normalized average consumption (NAC) approach for large agricultural and industrial customers, calculate and provide the following metrics and CIP criteria.
 - i. Net Present Value (NPV) of 10-year Revenue Requirement assuming a commercial operation date within 24 months of approval
 - ii. Cumulative 10-year Revenue Requirement
 - iii. NPV of 10-year Revenue Requirement per Metre of Pipe (\$/m)
 - iv. NPV of 10-year Revenue Requirement per 10³m³ delivered (\$/10³m³)
 - v. Average Number of Customers per Kilometer
 - vi. Cumulative 10-yr Revenue Requirement per Unit of Volume
 - vii. Customer Years
 - viii. Cumulative 10-yr Volume
 - c) How much do large agricultural customers make up in both your original bid and in your answer to question 2(b)?
 - d) Assuming no industrial customers (and the associated pipe used to directly connect the industrial customers and associated volumes, with all other assumptions remaining the same), recalculate and provide the metrics and CIP criteria listed in 2(a) and 2(b) above. For clarification, the OEB is not seeking a complete redesign of the system in terms of pipe diameter, material, etc. In cases where the industrial customer is at the tail end of a pipeline, remove that portion of pipeline and recalculate the metrics and CIP criteria keeping all else unchanged.
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Response to Interrogatory #2(a):

Based on EPCOR’s CIP proposal, the following are the requested metrics:

Table 2(a)
 CIP Metrics

#	Metric	Unit	Value
1	NPV of 10 year Revenue Requirement per Meter of Pipe	\$ / m	190.62
2	Average Number of Customers per Kilometer	# / km	17.03
3	Cumulative 10 year Revenue Requirement per Unit of Volume	\$ / m ³	0.1766

The average number of customers per kilometer is calculated by dividing total customer count by the total system length in 2028. The total system length in 2028 has been provided in Interrogatory Response #6 and is 309.9 km.

Response to Interrogatory #2(b):

The following presents the requested metrics using an annual normalized average consumption (NAC) approach for large agricultural and industrial customers.

Table 2(b)
 NAC Values and Metrics

#	Metric	Unit	Value
1	NPV of 10 year Revenue Requirement ¹	\$	59,072,317
2	Cumulative 10 year Revenue Requirement	\$	75,583,261
3	NPV of 10 year Revenue Requirement per Metre of Pipe	\$ / m	190.62
4	NPV of 10 year Revenue Requirement per 10 ³ m ³ delivered	\$ / 10 ³ m ³	172.63
5	Average Number of Customers per Kilometer	# / km	17.03
6	Cumulative 10 year Revenue Requirement per Unit of Volume	\$ / m ³	0.2209
7	Customer Years	years	42,569
8	Cumulative 10 year Volume	m ³	342,186,741

¹This interrogatory directs that when answering this question EPCOR should be “*assuming a commercial operation date within 24 months of approval*”. In addressing this interrogatory, EPCOR has retained the schedule and timings provided in its CIP application and is of the view it has adhered to this request.

Response to Interrogatory #2(c):

Large agricultural customers make up eight out of EPCOR’s 5,278 total connections and 12,456,101 m³ out of a cumulative volume of 428,035,564 m³ in EPCOR’s original bid.

EPCOR is unable to recalculate the values in Table 2(b) with only large agricultural customers as

EPCOR has not broken out revenue requirements by customer type. This will be determined during the Leave to Construct phase of the project. However, in EPCOR's answer to Interrogatory #2(b), large agricultural customers make up the same number of connections as in its original bid (eight of the total 5,278 total connections) and 12,456,101 m³ out of EPCOR's 342,186,741 m³ cumulative 10 year NAC volume.

Response to Interrogatory #2(d):

The following metrics assume no industrial customers (and the associated pipe used to directly connect the industrial customers and associated volumes), with all other assumptions remaining the same:

Table 2(d)i
 Metrics from 2(a) With No Industrial Customers

#	Metric	Unit	Value
1	NPV of 10 year Revenue Requirement per Meter of Pipe	\$ / m	182.06
2	Average Number of Customers per Kilometer	# / km	17.09
3	Cumulative 10 year Revenue Requirement per m ³ of Capacity Vol	\$ / m ³	0.5633

Table 2(d)ii
 Metrics from 2(b) With No Industrial Customers

#	Metric	Unit	Value
1	NPV of 10 year Revenue Requirement	\$	56,188,996
2	Cumulative 10 year Revenue Requirement	\$	72,017,709
3	NPV of 10 year Revenue Requirement per Metre of Pipe	\$ / m	182.06
4	NPV of 10 year Revenue Requirement per 10 ³ m ³ NAC Vol Delivered	\$ / 10 ³ m ³	439.45
5	Average Number of Customers per Kilometer	# / km	17.09
6	Cumulative 10 year Revenue Requirement per Unit of NAC Volume	\$ / m ³	0.5633
7	Customer Years	years	42,539
8	Cumulative 10 year NAC Volume	m ³	127,860,780

Interrogatory #3

3. Ref: Calculation of comparison criteria in EPCOR and Union CIPs – beginning of 10 year rate stability period

Preamble:

For each of Union and EPCOR's CIPs, the parties did not agree, and the Board did not specify, when during the project life the 10 year rate stability period should begin. As such, options include at the start of project construction, or when the first customer is attached. In EPCOR's CIP, the 10 rate year stability period was started as of January 2019, the year when construction began as EPCOR will have an approved tariff at that time. As a result, for the first year of the project (2019), EPCOR stated that it only included industrial volumes for the two last months when the system was in service.

This means that over the 10 year rate stability period EPCOR has 110 months of industrial customer volume included in its total volume values. EPCOR states that it appears that Union started its 10 year period when the system was in service. As a result, Union appears to have 120 months of industrial customer volume in its total volume values. This will result in two of the three metrics agreed to between the parties – cumulative 10 year revenue requirement per unit of volume and cumulative 10 year volume – are not using the same number of months over which industrial volume is accumulated when calculating the metric.

For residential and commercial customers there appears to be no misalignment on the volumes between EPCOR and Union as both EPCOR and Union agreed on the common assumption that residential and commercial customers will be connected at midyear for volume calculation purposes. In order to ensure the agreed to metrics are directly comparable, EPCOR proposed to recalculate its metrics using the same timing assumption that Union appears to have used by starting the 10 year rate stability period at the time of initial customer attachment.

Question:

Please recalculate the metrics in 2(a) and 2(b) with the 10 year rate stability period starting at the time the system was in service, without changing any of the other assumptions used in the CIP.

Response to Interrogatory #3:

Recalculated metrics in Interrogatory #2(a) with the 10 year rate stability period starting at the time the system was in service, without changing any of the other assumptions used in the CIP are as follows:

Table 3(a)
 Recalculated Metrics from 2(a)

#	Metric	Unit	Value
1	NPV of 10 year Revenue Requirement per Meter of Pipe	\$ / m	193.14
2	Average Number of Customers per Kilometer	# / km	17.03
3	Cumulative 10 year Revenue Requirement per Unit of Volume	\$ / m ³	0.1677

Recalculated metrics using NAC for large agricultural and industrial customers from Interrogatory #2(b) with the 10 year rate stability period starting at the time the system was in service, without changing any of the other assumptions used in the CIP are as follows:

Table 3(b)
 Recalculated Metrics from 2(b)

#	Metric	Unit	Value
1	NPV of 10 year Revenue Requirement	\$	59,852,955
2	Cumulative 10 year Revenue Requirement	\$	76,378,362
3	NPV of 10 year Revenue Requirement per Metre of Pipe	\$ / m	193.14
4	NPV of 10 year Revenue Requirement per 10 ³ m ³ delivered	\$ / 10 ³ m ³	165.50
5	Average Number of Customers per Kilometer	# / km	17.03
6	Cumulative 10 year Revenue Requirement per Unit of Volume	\$ / m ³	0.2112
7	Customer Years	years	42,569
8	Cumulative 10 year Volume	m ³	361,659,806

Interrogatory #4

Indigenous Issues

4. Ref: EPCOR's CIP Application / Tab 5 / p. 25 / Items 45-46

Questions:

- a) What impacts will EPCOR's proposal have on the provision of natural gas to Saugeen Ojibway Nation reserve communities and off-reserve members in the region?
- b) What impacts will EPCOR's proposal have on the cost of natural gas to Saugeen Ojibway Nation reserve communities and off-reserve members in the region?

Response to Interrogatory #4(a):

EPCOR's proposal is not expected to have any impact on the provision of natural gas to Saugeen Ojibway Nation reserve communities as these communities are outside of the project area. Off-reserve members of the Saugeen Ojibway Nation who live in areas serviced by the project will have the opportunity to convert to natural gas.

Response to Interrogatory #4(b):

EPCOR's proposal is not expected to have any impact on the cost of natural gas to Saugeen Ojibway Nation reserve communities as these communities are outside of the project area. Off-reserve members of the Saugeen Ojibway Nation who live in areas serviced by the project will have the opportunity to convert to natural gas. The cost of natural gas to customers within the project area will be determined at the Leave to Construct phase of this project.

Interrogatory #5

Infrastructure

5. Ref: EPCOR's CIP Application / Tab 2 / p. 7 / Item 19, Tab 5 / p. 20 / Item 10

Preamble:

EPCOR addresses potential benefits of CHP volumes included in its forecast for the CIP proposal, acknowledging it has no commitment from the customer.

Question:

Has the economic feasibility of the CHP facility has been validated? If so, indicate whether the related volumes are included in EPCOR's volume forecast and confirm that the system has been designed with adequate capacity to serve the CHP facility and that associated costs are included in the revenue requirement.

Response to Interrogatory #5:

EPCOR has confirmed initial validity of the economic feasibility of the proposed CHP facility.

In working on the Southern Bruce natural gas project, EPCOR has identified feasible economic development initiatives relating to industrial customers, including installation of a CHP facility, and, integration of natural gas as a fuel switching opportunity to support energy loads in addition to heating.

- EPCOR's CIP **includes** the volumes, system capacity, and associated costs in its submitted revenue requirement as it relates to fuel switching.
- EPCOR's CIP **does not include** volumes, system capacity, and associated costs in its submitted revenue requirement as it relates to CHP.

CHP and fuel switching are partial substitutes for each other; both initiatives would not be installed simultaneously. In the event the customer commits to the CHP project, the volumes, system capacity, and associated costs in the submitted revenue requirement related to fuel switching would be unnecessary and therefore can be allocated to CHP. As such, EPCOR's CIP partially supports installation of a CHP facility for the customer's existing needs, larger CHP installations may result in an incremental increase in volumes and revenue requirement as submitted. The incremental increase for CHP is forecast to result in a lower delivered \$/m3 of natural gas as approximated in EPCOR's CIP Application / Tab 2 / p.38 / Table 7 from \$0.1766 to \$0.1710 to \$0.1623.

Interrogatory #6

6. Ref: EPCOR’s CIP Application / Tab 5 / pp. 20-22 / Items 13-21

Question:

Please provide the length of pipelines to be used for all supply and distribution mains by size within material type steel, MDPE, or HDPE) in a format similar to Table 4 (Supply Laterals) and Table 5 (Distribution Pipelines) included in Union’s CIP proposal.

Response to Interrogatory #6:

EPCOR is proposing to construct the Project from a supply point at Dornoch, connecting to the Owen Sound Line. Table 1 below provides a summary of supply laterals and Table 2 provides a summary of the distribution pipeline lengths proposed to provide natural gas distribution over the forecasted 10 year period to the communities of Chesley, Paisley, Inverhuron, Tiverton, Kincardine (including bypass route), Lurgan Beach, Point Clark, Ripley, Lucknow and the Bruce Energy Center. EPCOR’s CIP provided lengths for supply laterals and distribution pipelines in Schedule E specifically for years 2019 and 2020.

**Table 6(a)
 Summary of Supply Laterals – 2019 to 2028**

Supply Point	Pipe Type	Diameter	Length (km)
Owen Sound Line	Steel Pipe	NPS 8	58.6
	Steel Pipe	NPS 6	15.8
Total			74.4

**Table 6(b)
 Summary of Distribution Pipelines – 2019 to 2028**

Supply Point	Pipe Type	Diameter	Length (km)
Owen Sound Line	Polyethylene Pipe	NPS 6	46.3
	Polyethylene Pipe	NPS 4	16.8
	Polyethylene Pipe	NPS 2	172.4
Total			235.5

Interrogatory #7

Scheduling/Next Steps

7. Ref: EPCOR's CIP Application / Tab 5 / p. 25 / Items 45-46

Questions:

- a) If EPCOR were to be selected as the successful proponent, how soon after would EPCOR commit to submitting its Leave to Construct application with the Board?
- b) Please elaborate on what outstanding activities EPCOR needs to undertake, including the EIA and community consultation process, to be in a position to submit an LTC Application.

Response to Interrogatory #7(a):

EPCOR is committed to submitting its Leave to Construct (LTC) Application to the Board as soon as it is practically possible which is currently estimated to be within 100 days from being selected as the successful proponent.

Response to Interrogatory #7(b):

The following table indicates the projected timelines and the corresponding activities for filing of the LTC Application post OEB Franchise Award. The key activity on the critical path is the finalization of the Environmental Report (ER) including the completion of the stakeholder consultations and incorporation of feedback, followed by the Ontario Pipeline Coordinating Committee (OPCC) review. While it is EPCOR's intention to submit the application as soon as all activities are completed, delays for activities outside of EPCOR's control may impact the project timeline.

Activity	Duration	Week														
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
OEB Franchise Award	1d	◆														
Finalize Upstream Gas Transportation Arrangements	6w		■	■	■	■	■	■								
Finalize Rates for LTC	6w					■	■	■	■	■	■					
Negotiate Large Customer Contracts	6w					■	■	■	■	■	■					
Complete Environmental Report (ER)	14w		■	■	■	■	■	■	■	■	■	■	■	■	■	■
Public notice pipeline route / ER open houses	2w		■	■												
Public consultation period	4w			■	■	■	■									
Finalization of ER	3w						■	■	■							
Submit ER to OPCC for comments	6w									■	■	■	■	■	■	
Finalize System Design	3w								■	■	■					
Finalize EPC Contract	4w									■	■	■	■			
Finalize LTC Application	2w														■	■
Submit LTC Application to OEB	1d															◆

● OEB Process ● Rates/Contracts ● Environmental/Stakeholders ● Design-Build Finalization