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Exhibit 4: Operating Expenses

1. This Exhibit provides an overview of the operating expenses forecasted by EPCOR including gas supply, transportation, storage, as well as operations, maintenance, and administrative activities (“OM&A”) and their drivers related to the Southern Bruce natural gas distribution system. The OM&A expenses detailed in this Exhibit are those used by EPCOR during the CIP process to establish its \$75.583M revenue requirement as accepted in by the Board¹. This revenue requirement supported the lowest cost to deliver gas during the rate stability period and has been subject to, and tested by, the competitive process with the result that EPCOR has established a value which reflects the lowest costs. As indicated by the Board the competitive process features incentives to lower costs *“Incentives to build and operate at lowest possible costs to attract connections so that stated revenue requirements during the rate stability period can be achieved or exceeded.”*²
2. As an expansion project, the EPCOR Southern Bruce system has no historical information to draw from. Therefore, the evidence presented is focused on expenses for the 2019 to 2028 rate stability period. The underlying details that supported the revenue requirement established by the Board’s Southern Bruce Expansion Decision (e.g. OM&A) were not quantified during the CIP Proceedings but have been detailed in this Exhibit. Included in the risk transfer framework of the competitive CIP process, the risk of overruns for certain OM&A costs remains with EPCOR during the 10-year rate stability period.
3. Forecasts have been included for expenses that were not addressed in the CIP process, such as lost and unaccounted for gas (“UFG”) and demand side management costs.
4. As an expansion project with an established 10-year revenue requirement and no existing revenue base, EPCOR has provided information for the entire 10-year rate stability period, rather than for a bridge year or test year.

¹ EB-2016-0137/0138/0139 Decision And Order April 12, 2018 Section 3.3 Route and Infrastructure Plan, page 6

² Ibid, page 7

4.1 Gas Supply, Transportation and Storage Costs

1. The purpose of this section is to detail EPCOR's plan and costs related to upstream activities for Gas Supply, Transportation, and Storage including:
 - i. Transportation
 - ii. Storage
 - iii. Daily and Cumulative Load Balancing
 - iv. Gas Supply
2. As defined within Union's Rate M17 Firm Transportation Service application (EB-2018-0244), EPCOR would be considered an ex-franchise customer and eligible for that service. The M17 is an unbundled service (as an example as compared to the M9 service) that includes a transportation service and certain daily balancing. Upstream activities including gas supply and seasonal storage are not included. Limited load balancing service is provided as described in Union's proposed Limited Balancing Agreement ("**LBA**"). The LBA includes a service fee if the daily or cumulative imbalance exceeds a specified band. A draft of this agreement, which has not been approved by the parties, is included in Exhibit 4 Tab 2 Schedule 2.
3. To assist in the development of a strategy to manage its gas supply, EPCOR engaged Blackstone Energy Services Inc. to prepare a Gas Supply Plan for the 3-year 2019-2021 period ("**Gas Supply Plan**"). The Gas Supply Plan has been developed using the planned throughput volumes and customer attachments committed to by EPCOR for Rate 1, Rate 6, and Rate 11 customers to analyze and propose a procurement strategy for EPCOR to source gas and storage services. The intent is to renew this plan after the initial 3-year period. The renewed plan would build on and strengthen its forecast analysis using historical system data generated over this initial period.
4. The objective of EPCOR's Gas Supply Plan is to develop a right-sized portfolio of natural gas commodity and storage assets that ensures consumers receive a cost-effective, reliable and secure natural gas supply. The portfolio is designed to strike a balance between these guiding principles, which are consistent with the Board's legislated mandate to protect the interest of consumers with respect to prices and the reliability of gas service. The Gas Supply Plan was

developed by following the Framework for the Assessment of Distributor Gas Supply Plans (**“the Framework”**).

5. The Framework requires that, along with cost-effectiveness and reliability of supply, the Gas Supply Plan is aligned with public policy objectives. As the current Ontario government has tabled legislation that would repeal the Climate Change and Low-Carbon Economy Act, 2016, at the time of drafting there are no explicit public policy mandates in place at the provincial level, particularly related to Cap and Trade or Renewable Natural Gas, that EPCOR considered while developing the Gas Supply Plan. If public policy objectives are introduced in the future, EPCOR will include an approach to achieving those objectives in the annual updates. For example, EPCOR is closely monitoring the development of the Federal Clean Fuel Standard regulatory framework and will assess compliance options and associated costs when the regulation is enacted.
6. The Gas Supply Plan is intended to provide strategic direction that will guide EPCOR’s ongoing decisions related to its natural gas portfolio such that the Utility is able to meet Peak Day, seasonal, and annual demand throughout the winter and summer periods for General Service customers and Contract Customers at least cost. The plan does not commit EPCOR to procuring a set volume and/or source of natural gas, but rather provides a roadmap that is sufficiently flexible, such that reliable and cost-effective natural gas commodity and storage assets can still be procured in the event of changing or unexpected demand, consumption patterns, weather, or market forces.
7. EPCOR relied on the information developed in the Gas Supply Plan to forecast costs associated with gas supply, M17 charges, storage, and load balancing over the 10-year period for all rate classes. This information is included in Exhibit 4 Tab 1 Schedule 2. For purposes of this forecast, it is assumed all gas is transported from Dawn. Forecasts of these values for the first 5 years are provided in Table 4-1 below.

Table 4-1: 5-Year Forecasted Upstream Costs

(Thousands of Dollars)

		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
Description		2019	2020	2021	2022	2023
Row 1	Gas Supply Commodity Cost	187	646	1,179	1,599	1,857
Row 2	Transportation	83	492	495	498	499
Row 3	Storage	51	92	128	152	168
Row 4	Load Balancing Administration	6	31	35	39	41
Row 5	Sum	327	1,261	1,837	2,288	2,565

8. A copy of the Gas Supply Plan is included in Exhibit 4 Tab 3 Schedule 1.

4.2 Lost and Unaccounted for Gas (“UFG”)

1. This section details EPCOR’s proposed UFG rate for its Southern Bruce natural gas distribution system. UFG represents the difference in the volume of gas received into the system, in this case from Union at the transfer station located at Dornoch, and the total volume of gas accounted for through measured deliveries to customers or for EPCOR’s use. There are typically two types of UFG, operational, and accounting based. Operational UFG includes variations in pressure or temperature (both causing changes in the distribution system’s line pack), fugitive emissions, and meter inaccuracies or other unidentified reasons. Accounting UFG can result from data entry errors, misreporting, timing of meter readings to billing, or other unidentified reasons.
2. As EPCOR has no historical data to draw on to develop a forecast for UFG it has looked to its natural gas distribution system in Aylmer to determine a base rate. Currently the Aylmer operations are allowed a 0% UFG rate as per EB-2010-0018. EPCOR proposes to use this value for the Southern Bruce system. EPCOR is also proposing to establish a variance account (Unaccounted for Gas Variance Account) to recover costs associated with UFG as discussed in Exhibit 9. This will allow recovery of costs if the actual values are above 0%.

4.3 Operating, Maintenance, and Administrative Costs (OM&A)

4.3.1 OM&A Overview

1. The following section details EPCOR's forecasted OM&A costs as developed by EPCOR in establishing its \$75.583M revenue requirement. OM&A forecasts are provided for the 10-year rate stability period rather than a specific test year.
2. With no historical information to draw from, there are no historical cost driver changes, business environment changes, cost trends or year over year variance analysis to present. EPCOR's OM&A costs for 2019 – 2023 are included in Table 4-2 below.

Table 4-2: 2019-2023 OM&A Forecast

		(Thousands Dollars)				
		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
Operating Expense		2019	2020	2021	2022	2023
Row 1	Salaries & Wages & Benefits	615	1,246	1,185	1,200	1,215
Row 2	Utilities	9	18	18	18	19
Row 3	Billing & Collection	15	62	74	88	101
Row 4	Insurance	12	41	53	59	59
Row 5	Repairs & Maintenance	5	28	40	48	55
Row 6	Vehicle & Travel	27	55	55	56	57
Row 7	Office & Administrative	54	110	111	112	114
Row 8	Contractors & Emergency Services	52	119	131	139	146
Row 9	Shared Services	92	423	495	546	589
Row 10	Marketing	13	26	26	27	27
Row 11	Capitalization	-338	-685	-474	-480	-486
Row 12						
Row 13	Grand Total	555	1,443	1,715	1,813	1,895

3. The revenue requirement established during the CIP process was directly impacted by the competitive process as the proponents worked to reduce expenses through the incorporation of productivity and stretch factors into their bids. Identifying and incorporating productivity and stretch factors allowed the utility to reduce the revenue requirement, thereby lowering rates,

which in turn is expected to encourage customer conversion and promote the long-term viability of the system.

4. In Procedural Order 6, when the Board established the 10-year rate stability period, the Board indicated³:

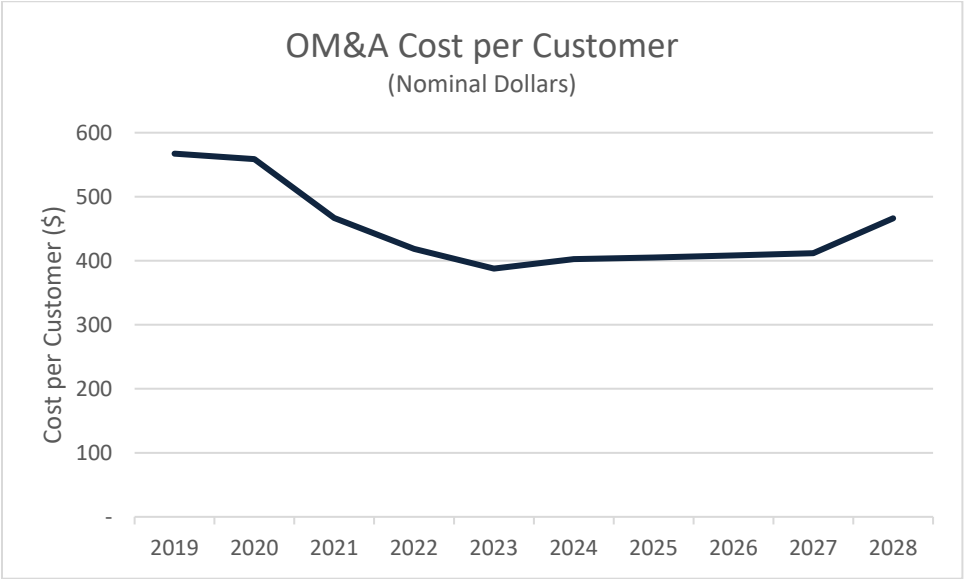
“A function of the rate stability period is the downward pressure it places on costs due to the potential to increase the overall revenues of the utility.”

5. EPCOR used an inflation rate of 1.27% when forecasting OM&A costs over the 10-year rate stability period. This rate was as agreed to as part of the common assumptions used in CIP framework which enabled the Board to directly compare competing CIPs.
6. The trend for OM&A cost per customer⁴ over the 10-year rate stability period is included in Figure 4-1 below. OM&A cost per customer declines as the system experiences rapid growth in customer attachments during the initial years. Once market penetration reaches target levels, costs per customer level off. At the end of the 10-year stability period there is a forecast increase in the OM&A cost per customer as result of a further reduction in capitalized salaries. At the end of the 10-year forecast period it is expected that capitalization would reflect levels necessary to support a stable level of new services and repairs and maintenance such as replacement of meters.
7. OM&A costs per customer in table format (real and nominal dollars) for the 10-year rate stability period has been provided in Exhibit 4 Tab 1 Schedule 2

³ EB-2016-0137/0138/0139, Partial Decision on Issues List and Procedural Order No. 6, June 27, 2017, page 4 of 7.

⁴ The OM&A values are net of capitalization.

Figure 4-1: OM&A Cost per Customer
(Nominal Dollars)



8. EPCOR bears the risk of achieving cost efficiencies that it incorporated into its OM&A values during the rate stability period. If additional cost efficiencies are realized the rate payer will benefit as they will be reflected in the rate application that EPCOR will file to determine rates subsequent to the rate stability period.

4.3.2 Summary and Cost Drivers

9. EPCOR's forecasted OM&A levels for the first 5 years of operations are provided in

10. Table 4-3 below. Full 10-year values are provided in Exhibit 4 Tab 1 Schedule 2. EPCOR's operating costs are categorized and explained based on the following eleven categories:

- i. Salaries & Wages & Benefits
- ii. Utilities
- iii. Billing & Collection
- iv. Insurance
- v. Repairs & Maintenance
- vi. Vehicle & Travel
- vii. Office & Administrative
- viii. Contractors & Emergency Services
- ix. Shared Services
- x. Marketing
- xi. Capitalization

Table 4-3: 2019-2023 OM&A Forecast – Nominal Dollars

(Thousands of Dollars)

		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
	Operating Expense	2019	2020	2021	2022	2023
Row 1	Salaries & Wages & Benefits	615	1,246	1,185	1,200	1,215
Row 2	Utilities	9	18	18	18	19
Row 3	Billing & Collection	15	62	74	88	101
Row 4	Insurance	12	41	53	59	59
Row 5	Repairs & Maintenance	5	28	40	48	55
Row 6	Vehicle & Travel	27	55	55	56	57
Row 7	Office & Administrative	54	110	111	112	114
Row 8	Contractors & Emergency Services	52	119	131	139	146
Row 9	Shared Services	92	423	495	546	589
Row 10	Marketing	13	26	26	27	27
Row 11	Capitalization	-338	-685	-474	-480	-486
Row 12						
Row 13	Grand Total	555	1,443	1,715	1,813	1,895

11. EPCOR’s OM&A costs have been calculated on a fully allocated cost basis. The utility’s OM&A levels have been developed to ensure a safe, reliable, and cost-efficient operation of the distribution system.
12. “Salaries, Wages, and Benefits” reflect staff compensation and benefits including incentive compensation and overtime for the system’s employees. These costs include seven full time equivalent (“FTE”) staff at 40 hours per week, as well as salary transfers covering costs of services including management from staff within ENGLP or EUI. Salaries, Wages, and Benefits are reported gross of salary recoveries for employee time spent on capital projects. These costs are the primary cost driver of the OM&A budget representing 53% of the cumulative 10-year operating expenses when excluding capitalization. Details of employee levels and compensation are discussed in Section 4.4 of this Exhibit.
13. “Utilities” and “Office & Administrative” categories include costs for activities required to manage the day-to-day operations of the system. These categories include electricity and natural gas

usage, as well as the lease and other costs associated with office, warehouse, and yard space within the Southern Bruce area.

14. "Billing & Collection" includes the costs associated with billing, collection, banking fees, and a forecasted bad debt allowance. Bad debt allowance has been forecasted using data from EPCOR's Aylmer operations.
15. "Insurance" includes the following coverage for general commercial activities and those related to fleet, property, environmental, and more.
 - i. Commercial General Liability - \$10,000,000 per occurrence
 - ii. Automobile Liability - \$10,000,000 per occurrence
 - iii. Crime and Fidelity - \$10,000,000 per occurrence
 - iv. Cyber Liability - \$5,000,000 per occurrence
 - v. Fixed Site Environmental Liability - \$10,000,000 per occurrence
 - vi. Professional Services Liability (E & O) - \$2,000,000 per occurrence
 - vii. Property, Boiler & Machinery and Terrorism - \$200,000,000 per occurrence
16. "Repairs & Maintenance", "Contractors & Emergency Services" categories include costs related to external legal counsel, audit services, meter-reading services, one-call locate services, emergency call center, supervisory control and data acquisition ("SCADA") systems licensing, and materials for repairs to the system. It is anticipated minimal repairs and maintenance will be required over the 10-year rate stability period. Costs are expected to increase in this category beyond the 10-year period to support aging infrastructure.
17. "Vehicle & Travel" includes the cost of using and maintaining a fleet of four half-tonne trucks, as well as accommodations, meals, and other travel.
18. "Shared Services" are costs associated with support from EPCOR Utilities Inc. ("EUI") and other affiliate corporations. These services are centrally managed within EUI due to their nature and/or for the purpose of realizing economies of scale and greater effectiveness. For EPCOR's Southern Bruce system, it is more cost effective to have EUI manage certain activities rather than to hire

specialized employees. Services provided include governance, treasury, finance, legal, regulatory, IT and human resources. These costs are the secondary cost driver representing 24% of the cumulative 10-year operating expenses when excluding capitalization. The services provided are described in further detail in Sections 0, 4.6, 4.3.3.2C and 4.8.

19. “Marketing” expenses are to support ongoing community engagement and to promote customer conversions to natural gas.
20. “Capitalization” represents the burdened (i.e. salaries, wages, benefits, overtime, training, travel, safety) cost of staff required to support and execute capital projects. This includes senior management oversight, project governance, as well as operational installations and maintenance of infrastructure included in the rate base. In the initial years capitalized salaries are higher to account for system construction and growth. Staff will be supporting construction activities, providing new service connection services and overall support to the growth of the system.
21. The forecasted OM&A levels assume an inflation rate of 1.27% per annum, in accordance with Procedural Order 8 and the common assumptions agreed to by the parties during the CIP process.⁵

“For purposes of CIP comparison, both proponents will apply the most recent four quarter average annual inflation rate as determined from GDP IPI FDD, which is 1.27% as reported for the second quarter of 2017.”

22. As detailed in Exhibit 10, EPCOR is requesting a Custom IR plan that would allow it to recover actual inflation for OM&A expenses. For clarity, EPCOR has provided 2018 real dollar figures (i.e. including inflation) for its OM&A expenses in
23. Table 4-4 below. The full 10-year details of these values are provided in 0 Tab 1 Schedule 2.

⁵ EB-2016-0137/0138/0139, Union and EPCOR Correspondence, dated October 2, 2017, page 2 of 3

Table 4-4: 2019-2023 OM&A Forecast - 2018 Real Dollars
 (Thousands of Dollars)

		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
	Operating Expense	2019	2020	2021	2022	2023
Row 1	Salaries & Wages & Benefits	607	1,215	1,141	1,141	1,141
Row 2	Utilities	9	17	17	17	17
Row 3	Billing & Collection	15	61	71	84	95
Row 4	Insurance	12	40	51	56	56
Row 5	Repairs & Maintenance	5	27	39	46	52
Row 6	Vehicle & Travel	27	53	53	53	53
Row 7	Office & Administrative	53	107	107	107	107
Row 8	Contractors & Emergency Services	51	116	126	132	137
Row 9	Shared Services	90	413	477	519	553
Row 10	Marketing	13	25	25	25	25
Row 11	Capitalization	-334	-668	-456	-456	-456
Row 12						
Row 13	Grand Total	548	1,407	1,652	1,724	1,779

4.3.3 Program Delivery Costs

24. The following sections outline EPCOR's Southern Bruce program delivery costs, including its workforce and employee compensation plan, details regarding Corporate Shared Services and Shared Services from other affiliates, non-affiliate transactions, low income programs, and charitable and political donations.
25. EPCOR's Southern Bruce natural gas distribution system does not have any historical data to draw from. As a result, no variance analysis has been provided for these programs.

4.3.3.1 Workforce Planning and Employee Compensation

26. EPCOR's workforce plan and employee compensation form a major part of the OM&A costs and are a vital requirement for the safe and reliable operation of the system. Proper workforce planning and compensation levels will ensure skilled employees are attracted and retained, and that they are engaged in the work performed.
27. EPCOR's proposed workforce includes seven FTE staff. The staff are grouped into four categories:
 - i. Customer Service;
 - ii. Gas Fitter;
 - iii. Maintenance; and,
 - iv. Foreman/Manager.
28. None of the categories include more than three FTE's, therefore the compensation levels and information provided below are bundled together in accordance with the Filing Requirements for Natural Gas Rate Applications dated February 16, 2017.
29. In addition, EPCOR's Southern Bruce system will receive management and support services from EPCOR's Aylmer natural gas distribution system or other EUI entities equivalent to nearly two FTE staff in an average operating year. The provision of the services in this manner allows the two utilities to share employees and achieve economies of scale, benefiting both utilities. These services are provided on a fully loaded cost recovery basis. The management and support functions to be shared with EPCOR's Aylmer system include:

- i. General Manager; and
 - ii. Administrative Manager.
30. Additional support functions are directly charged from other EUI entities, the services available include:
 - i. Capital planning and management;
 - ii. Operational support;
 - iii. Health, safety and environment; and
 - iv. Financial planning and management.
31. To attract and retain a skilled workforce, it is necessary to provide a competitive compensation package based on the current employment market environment. As such, and under the direction of EUI's Human Resources and Compensation Committee of the EUI Board, EUI and its subsidiaries target the "mid-market" or 50th percentile for total employee compensation.
32. This approach ensures that EPCOR compensates its employees at an appropriate level. Over compensating could harm EPCOR's overall competitiveness. Under compensating could make it difficult to recruit new employees and would create employee dissatisfaction, which could lead to higher turnover rates. Attracting and retaining qualified staff is critical for EPCOR to provide safe and reliable service to its customers and therefore it is also important that each component of compensation is market competitive.
33. EPCOR provides a total compensation package including a fixed salary and wage component, employer paid benefits, and a performance based variable component through its Short-Term Incentive ("STI") program.

34. Table 4-5 details EPCOR's forecast of employee expenses for each of the next 5 years. Details for the 10-year rate stability period have been provided in Exhibit 4 Tab 1 Schedule 2.

Table 4-5: Employee Expenses – Nominal Dollars
(Thousands of Dollars)

		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
	Description	2019	2020	2021	2022	2023
Row 1	FTEs	7	7	7	7	7
Row 2	Salaries and Wages	317	641	650	658	666
Row 3	Benefits	79	160	162	165	167
Row 4	Short-Term Incentive Program	10	21	21	22	22
Row 5	Salary Transfers	198	401	329	333	338
Row 6	Training, Supplies, Professional Dues	11	22	22	22	23
Row 7						
Row 8	Total	615	1,246	1,185	1,200	1,215

35. The “FTE” category identifies the number of staff during the operating years of the system. EPCOR forecasts that it will require seven FTE starting in 2019 and that number will remain constant over the 10-year rate stability period. During the initial years of construction and high growth in customer connections, more staff will focus on capital related activities and the work associated with starting a new office and establishment of operations whereas EPCOR anticipates it will require seven FTE for full operations. In addition, throughout the initial 10-year period it is necessary to have a minimum level of FTE in order to have reasonable illness and vacation absence coverage.
36. The “Salaries and Wages” category reflects the employee base compensation. This includes the annual salary for salaried employees or the hourly wage rate times the standard number of hours worked. For full-time permanent FTEs, time-related benefits such as vacation allowance and short-term disability are included in the annual base salary.
37. The “Benefits” category reflects the insurance benefits provided to employees including base medical, dental, and life insurance. In addition, it includes “flex credits”, providing employees dollars to allocate for additional benefit coverage, or to take as cash. This category also includes employer deductions such Canadian Pension Plan and Employment Insurance.
38. The “Short-Term Incentive Program” category reflects the variable based component of employee compensation available to all permanent employees. EPCOR’s STI program is designed to provide

employees a competitive incentive plan that reflects EUI (i.e. Corporate) and business level performance and the performance of the individual. Target payout levels under the STI program are expressed as a percentage of salary and generally align with the median market for roles with similar responsibilities.

39. "Salary Transfers" includes workforce support from Aylmer operation and affiliates within EUI. The costs in this category are based on recovery of fully loaded costs. This includes labour charges at a standard salary and labour rate, plus sectional overhead and burden calculated as a percentage of salaries transferred, and actual vehicle, material, contractor, and out of pocket expenses incurred for the task. In the case of services provided by affiliates, any such service is provided in accordance with the provisions outlined in the Affiliate Relationship Code for Gas Utilities (ARC), and ENGLP's ARC Compliance Plan, including pricing such service based on fully loaded cost where no reasonably competitive market exists for such services.
40. "Training, Supplies, and Professional Dues" provide a training budget for employees, as well as coverage of professional dues supporting the employee's job function.
41. As noted earlier, OM&A expenses were forecasted to inflate at 1.27%, including Salaries and Wages. As detailed in Exhibit 10, EPCOR is proposing an inflation adjustment mechanism in order to recover actual inflation. For clarity, EPCOR has reproduced

43. Table 4-5 with 2018 Real Dollar figures. The full 10-year details of these values are provided in 0 Tab 1 Schedule 2.

Table 4-6: Employee Expenses - 2018 Real Dollars
(Thousands of Dollars)

		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
	Description	2019	2020	2021	2022	2023
Row 1	FTEs	7	7	7	7	7
Row 2	Salaries and Wages	313	625	625	625	625
Row 3	Benefits	78	156	156	156	156
Row 4	Short-Term Incentive Pay	10	21	21	21	21
Row 5	Salary Transfers	195	391	317	317	317
Row 6	Training, Supplies, Professional Dues	11	21	21	21	21
Row 7						
Row 8	Total	607	1,215	1,141	1,141	1,141

4.3.3.2 Shared Services and Corporate Cost Allocation

A. Corporate Shared Services Received from EPCOR Utilities Inc.

44. This section describes the corporate services received from EUI and the allocation process used by EUI. In addition, any costs which are direct charged are described in this section as direct corporate charges.
45. EPCOR's Southern Bruce system obtains Shared Services from its parent corporation EUI ("Corporate Shared Services"). In addition, the utility obtains services from affiliate companies EPCOR Water Services Inc. ("EWSI"), EPCOR Commercial Services Inc. ("ECSI"), and EPCOR Ontario Utilities Inc. ("EOUI") as described in Sections B, C and D respectively. The services provided by these entities are necessary for EPCOR's Southern Bruce system to provide utility services and are comprised of activities that are centrally managed within EUI due to their nature and/or for the purpose of realizing economies of scale and greater effectiveness. Corporate Shared Services costs are determined on a cost recovery basis in accordance with the ARC, ENGLP's ARC Compliance Plan and will be delivered in accordance with a Service Level Agreement ("SLA") between the parties. The allocation of Corporate Shared Services within EUI is assessed regularly and adjusted as appropriate.
46. A copy of the SLA template is provided in Exhibit 4, Tab 2, Schedule 1. See Exhibit 4, Tab 1, Schedule 7 for a copy of the ARC Certification.
47. For some functional categories, such as Human Resources, Supply Chain and Public and Government Affairs, services are provided from EUI and EWSI. In these instances, the services provided by EUI tend to be limited to governance, oversight and broad policy considerations, while the services provided by EWSI are more tactical and are driven by the specific business needs of EPCOR's Southern Bruce system.

A.1 Corporate Service Cost Forecast Process

48. The forecast Corporate Shared Services costs for the 2018 year are based on EUI's 2018 budget. In developing its budget, EUI uses a "bottom up" approach to forecast expenditures based on the best available information with respect to expected work activity and cost levels.

A.2 Corporate Shared Services Cost Allocation Process

49. Consistent with the approach applied in previous years for all its regulated and nonregulated businesses and as filed with the Alberta Utilities Commission in EUI's Inter-Affiliate Code of Conduct for regulated utilities in Alberta, EUI allocates Corporate Shared Services costs to EUI business units using the following five step process:

- i. Categorize Corporate Shared Services costs as directly assignable or allocable.
- ii. Assign directly assignable costs to the appropriate business unit.
- iii. Review/develop/modify allocation method for allocable costs.
- iv. Apply allocation method to allocable costs.
- v. Conduct a final review for reasonableness.

Step 1 - Categorize Corporate Shared Services costs as either directly assignable or allocable

50. The first step in developing Corporate Shared Services charges was to review the components of Corporate Shared Services costs and categorize them into two defined groups:

- i. Directly assignable costs
- ii. Allocable costs

51. Directly assignable costs are those costs that are directly associated with a particular business unit's activity or operation. Allocable costs are those costs that provide benefits to EUI businesses but by their nature cannot be directly assigned and are charged to business units using an appropriate cost allocator.

Step 2 - Assign directly assignable costs to business units

52. Once the directly assignable costs are identified and determined they are charged directly to each business unit. Directly assignable costs are included in the budgets of the business units and are not included in the budgets of the respective corporate service departments.

Step 3 - Review/develop/modify allocation method for allocable costs

53. EUI's cost allocation process is designed to ensure that the allocation of Corporate Shared Services costs among business units is appropriate, fair and reasonable, cost-effective,

predictable, reflects the benefit received by function or cost causation and provides for consistency with the transfer pricing principles in the Affiliate Relationship Code for Gas Utilities (ARC), ENGLP’s ARC Compliance Plan, and EUI’s Inter-Affiliate Code of Conduct.

54. The costs associated with the corporate services departments providing Corporate Shared Services are allocated on one of two bases: (i) using a “functional cost causation allocator”; or (ii) using a “composite cost allocator”.
55. A functional cost causation allocator has been used where the costs can be logically allocated using an identified cost causation driver, such as headcount. The composite cost allocator has been used where the costs cannot be allocated using a particular functional cost causation allocator. The latter types of costs tend to be related to Corporate Shared Services that are of a governance nature, and it is appropriate that these types of costs be allocated based on a composite cost allocator which factors in the business unit’s share of EUI’s total revenues, assets, and headcount.
56. The allocation methods applicable to EUI’s allocable Corporate Shared Services costs are summarized in Table 4-7 below.

Table 4-7: EUI Allocators to EPCOR’s Southern Bruce System

Department and Function	Allocator
Governance	
EUI Board of Directors	Composite
Executive & Executive Assistants	Composite Headcount - (SVP Corporate Services)
Corporate Finance	
Corporate Accounting	Composite
Accounting Standards	Composite
Audit Fees	Composite
Accounts Payable	Functional Cost Causation – Invoice Lines
Consolidated Reporting & Analysis	Composite
Management Development Program	Composite
Taxation	Composite

Department and Function	Allocator
Centre of Excellence	Composite
Treasury	
Treasurer - Corporate Finance	Composite
Treasury Operations	50% of (Net Income + Depreciation), 50% Debt
Insurance and Physical Risk Management	Property, Plant, and Equipment (PPE)
Audit and Risk Management	
Internal Audit	Composite
Human Resources	
Payroll	Functional Cost Causation – Headcount
All Other Functions	Functional Cost Causation – Headcount
Information Services	
Application Services	Functional Cost Causation - Headcount
Infrastructure Operations	Functional Cost Causation - Direct IS Costs
Major Capital Projects	Functional Cost Causation - Headcount
Supply Chain Management	
Corporate procurement	Functional Cost Causation - Purchase Order Lines
Real Estate/Facilities	Composite
Mailroom	Functional Cost Causation – Canadian Headcount
Security	Functional Cost Causation – Canadian Headcount
SCM Corporate Services - Tower Rent, Maintenance, Security	Composite
Disaster Recovery Planning	Functional Cost Causation - Direct IS Costs - Canadian
Emergency Management & Business Resilience	Functional Cost Causation – Canadian Headcount
Public and Government Affairs (“P&GA”)	Composite
Legal Services	Composite
Health, Safety and Environment	Functional Cost Causation - Headcount
Incentive Compensation	Average Corporate Cost Allocation
Asset Usage Fees	
Disaster Recovery Leasehold	Composite

Department and Function	Allocator
Equipment – EPCOR Tower	Composite
Furniture and Fixtures	Composite
Human Resource System	Headcount
Information Systems	Direct I.S. Operating Costs
Leasehold Improvement – EPCOR Tower	Composite
Financial System	Corporate Finance & Purchasing Cost
Vehicles	Composite

Step 4 – Apply allocation methods to allocable costs

57. Once the allocation methods are determined, they are applied against final budgeted costs to arrive at the amounts to be charged to each business unit.

Step 5 - Final review of Corporate Shared Services charges for reasonableness

58. All of the resulting Corporate Shared Services costs are reviewed by EUI and ENGLP management for reasonableness prior to being finalized.

A.3 Directly Assigned Corporate Costs

59. Certain costs are directly assigned from EUI to its business units. The corporate directly assignable costs to various business units can include the following:
- i. Information system operating costs that can be directly attributable to the business such as support of information system applications including business analysis, planning and architecture, and project delivery; and,
 - ii. Information system operating costs including licensing and support costs that can be directly attributable to employees working within the business units such as support of desktop computers, printers, remote access, storage and the network.

A.4 Allocated Corporate Costs

60. Further details regarding the allocated corporate costs are provided for each corporate service department in the subsections that follow.

Governance

61. The corporate governance function includes both the function of the EUI Board of Directors (the “EUI Board”) and EUI executives.

EUI Board of Directors

62. The EUI Board provides corporate governance functions to EUI and its subsidiaries and businesses including:
- i. Developing corporate and strategic objectives and direction and strategic planning;
 - ii. Monitoring compliance with corporate law, articles and bylaws;
 - iii. Selecting and retaining senior management;
 - iv. Developing management authorities and responsibilities;
 - v. Developing and monitoring compliance with corporate policies;
 - vi. Safeguarding and maintaining the long-term value of corporate assets;
 - vii. Reviewing and approving significant financial matters; and
 - viii. Reviewing and approving operating and capital budgets, and financing requirements.
63. EUI Board costs include director’s fees, director and officer insurance costs, travel expenses, legal fees incurred at the EUI Board level and other related expenses.
64. The EUI Board is comprised of members that are independent from EUI, which ensures that there is an appropriate segregation of duties and responsibilities between the EUI Board and Chief Executive Officer. This independence in oversight is a best practice in governance and is necessary to ensure that EUI and its subsidiaries meet their obligations and responsibilities free from conflicts of interest.
65. The EUI Board members are not members of management and have no direct or indirect material relationships with EUI; as such, the EUI Board members provide a third party service to EUI and its subsidiaries. EUI Board members are appointed by the City of Edmonton in its role as shareholder of EUI, and are compensated for their services. Director compensation is regularly reviewed by the Corporate Governance & Nominating Committee, which receives independent advice from a

third party compensation expert, and makes recommendations to the City of Edmonton to determine directors' compensation.

Executive and Executive Assistants

66. Executives provide governance and leadership services to EUI and its subsidiaries and businesses.

These activities include:

- i. Establishing and recommending broad corporate policies for approval by the EUI Board ;
- ii. Reviewing and recommending significant financial matters/decisions for approval by the EUI Board;
- iii. Developing corporate-level strategy and plans for approval by the EUI Board;
- iv. Carrying out the special authorities delegated by the EUI Board;
- v. Establishing and maintaining an adequate control framework in relation to internal controls over financial reporting and disclosure controls and procedures, conducive to fulfilling compliance with National Instrument 52-109, the Canadian legislation equivalent to the United States Sarbanes–Oxley Act (commonly referred to as “CSOx”); and
- vi. Establishing appropriate processes, procedures and controls to ensure EUI fulfills its statutory obligations to provide utility services and contractual obligations to service its commercial customers.

Corporate Finance

67. The Corporate Finance department provides services to EPCOR's Southern Bruce system in the areas of:

- i. Accounts Payable;
- ii. Taxation Services;
- iii. Corporate Accounting;
- iv. Consolidated Reporting and Analysis and Accounting Standards;

- v. Financial Management Training Program; and
- vi. Audit Fees in relation to the preparation of EUI consolidated financial statements.

- **Accounts Payable**

68. The Accounts Payable function maintains vendor master files that are used for various purchasing, contract management and vendor payment functions. In addition, the Accounts Payable department is responsible for the management of procurement cards and processes all vendor invoices, credit notes and adjustments for payment on a periodic basis. The Accounts Payable function also develops and maintains all of the accounts payable related forms, policies, procedures and controls to be applied by all EUI's activities.

69. EPCOR's Southern Bruce system incurs costs from external parties related to utility service and these costs require payment. Accounts payable classifies costs for management reporting and analysis purposes and ensures that invoices are paid on time. In doing so, Accounts Payable can take advantage of cash discount terms where appropriate.

- **Taxation Services**

70. Taxation Services include all reporting and compliance related to taxes, inclusive of property taxes and linear taxes related to business unit property and utility assets, Goods and Services Taxes ("GST") and Harmonized Sales Taxes ("HST") related to business unit operations, Provincial Sales Taxes ("PST") related to business unit operations, Canadian and U.S. federal, provincial and state income taxes in relation to taxable business units, non-resident withholding taxes ("NRWT") on services performed on behalf of the business units by non-resident corporations, contractors and consultants, and customs duties related to materials and equipment imported by the business units. The Taxation group ensures that EUI and its subsidiaries and businesses are compliant with all tax legislation and provides strategic advice to minimize GST, PST, and NRWT, property tax, linear tax and income tax liabilities.

71. The activities performed by the Taxation group include:

- i. Preparing and filing returns and remittances related to GST, HST, PST, income taxes, property and linear taxes, and NRWT;

- ii. Reviewing the appropriateness and accuracy of assessments and reassessments issued by tax authorities in relation to all forms of tax, including the preparation and filing of any required notices of objection;
- iii. Performing research and generally maintaining a current level of knowledge related to all present and proposed forms of tax to ensure compliance with related rules and regulations conducive to minimizing interest and penalties on assessment and reassessment;
- iv. Planning and executing system and process changes required to implement new and revised taxes and tax rates (e.g. changes in HST and GST rates);
- v. Performing employee training sessions on the various forms of tax to ensure compliance at the business unit level;
- vi. Providing advice to corporate and business unit management on the development of policies and procedures that may be affected by any form of tax;
- vii. Performing acquisition due diligence;
- viii. Liaising with federal, provincial, state, municipal and county auditors on behalf of the business units in relation to audits performed of any form of tax; and
- ix. Providing tax planning services to minimize taxes.

- **Corporate Accounting**

72. The Corporate Accounting function develops and maintains corporate accounting policies, procedures and internal controls, and provides advice and direction to EPCOR's Southern Bruce system with respect to these policies, procedures and internal controls. Corporate Accounting also includes accounting activities in support of the financing provided to EPCOR's Southern Bruce system, as well as calculating the allocation of Corporate Shared Services costs to each of EUI's subsidiaries and businesses and maintaining and reviewing the allocation methodologies applied to those costs on an ongoing basis to ensure they are fair, reasonable and reflective of services provided. In connection with these activities, the Corporate Accounting group assists with the preparation of all regulatory related documentation and filings involving the allocation of

corporate costs and manages the annual budgeting and quarterly re-forecasting processes for all of EUI including performing various ad hoc analyses as required by the EUI and its various subsidiaries.

- **Consolidated Reporting and Analysis**

73. The Consolidated Reporting and Analysis group is responsible for the preparation of EUI consolidated financial statements and analysis and discussion of the results. More specifically, this includes:

- i. Ensuring appropriate accounting policies are developed and the relevant accounting standards are properly and consistently applied by all EUI subsidiaries;
- ii. Ensuring appropriate internal controls over financial reporting are developed and consistently applied by all EUI subsidiaries to ensure that EUI's interim and annual consolidated financial statements accurately and fairly present the financial results of the company;
- iii. Preparing EUI's interim and annual consolidated financial statements and management discussion and analysis as required under securities regulation;
- iv. Preparing internal consolidated financial statements and analysis for executives;
- v. Reviewing financial statements prepared by EUI subsidiaries to ensure they are prepared in accordance with accounting standards and consistent presentation and disclosure with the audited consolidated financial statements of EUI; and
- vi. Providing the executive with profitability, cost-effectiveness and other analyses as required.

- **Management Development Program**

74. The Management Development Program develops junior level finance, accounting and business management employees for mid-level roles across EUI. The program was designed to internally develop trainees in EUI's processes and its systems, policies and procedures with the aim of developing employees with greater familiarity with the various businesses within EUI as an alternative to hiring external candidates to fill vacancies. The program increases the retention of

talent, knowledge and the continuation of good practices and departmental policies. Finally, program trainees form a pool of resources to draw from as necessary as an alternative to using higher cost temporary workers and contractors to assist with special projects.

- **Audit Fees**

75. Audit Fees relate to the outsourced function of performing audits and quarterly reviews of EUI's annual and quarterly interim consolidated financial statements.
76. External financial statement audit services for EUI's consolidated financial statements are necessary for EPCOR's Southern Bruce system to access capital required to provide utility service. In order to access capital, EPCOR's Southern Bruce system relies on EUI to meet the financial reporting requirements set by creditors. If EUI's financial statements are not audited, access to capital could be restricted, which could in turn limit the utility's ability to make infrastructure investments.
77. By statute, financial statement audits can only be provided by chartered accounting firms. Therefore, the Audit Fees function is solely comprised of external resources.

- **Center of Excellence**

78. The Centre of Excellence team provides leadership, best practices, research, support and training for the Oracle Financial suite of products as well as the 'Adaptive' system budgeting and forecasting tool, standardizing EUI processes and procedures across the company, and developing and providing finance specific training and support for the Enterprise Resource Planning ("ERP") system across EUI business units and subsidiaries;

Treasury

79. The Treasury department provides the following services to EPCOR's Southern Bruce system and other EUI subsidiaries and businesses:
 - i. Treasurer – Corporate Finance; and,
 - ii. Treasury Operations.

- **Treasurer – Corporate Finance**

80. The Treasurer - Corporate Finance function performs the services associated with raising capital, primarily through the issuance of debt, necessary to finance EPCOR's Southern Bruce system's and other EUI subsidiaries' and businesses' capital expenditures and working capital requirements. The activities within this service include:
- i. Arranging and maintaining operating credit facilities with lenders;
 - ii. Preparing prospectuses for EUI's issuance of public debt for the benefit of EPCOR's Southern Bruce system and other EUI subsidiaries and businesses;
 - iii. Meeting with credit rating agencies and providing the information required by the rating agencies to provide credit ratings;
 - iv. Preparing short-term and long-term loan arrangements between EUI and the subsidiaries and businesses;
 - v. Providing subsidiaries and businesses with financing and capital structuring advice for capital projects and acquisitions;
 - vi. Managing the strategic planning process and developing EUI's corporate strategy and annually refreshing its five year long-term plan; assisting EUI subsidiaries and businesses in developing their long-term plans; developing and maintaining EUI's long-term planning model; providing financial and analytical support to EUI subsidiaries and businesses in relation to long-term planning; and completing an annual valuation of EUI and its subsidiaries and businesses; and
 - vii. Providing financial projections that underlie the strategic plan and preparing other long range financial forecasts.
81. The ability to raise capital is fundamental to the sustainability of the EPCOR Southern Bruce utility operations and the Treasurer - Corporate Finance function lowers costs by optimizing borrowings and negotiating cost-effective terms and conditions.

- **Treasury Operations**

82. Treasury Operations provides banking and cash management services to EPCOR's Southern Bruce system and other EUI subsidiaries and businesses. The activities within this service include:
- i. Opening and closing bank accounts;
 - ii. Cash forecasting and processing;
 - iii. Accounting for all of the treasury transactions and loans between all EUI entities; and,
 - iv. Managing exposure to foreign currency and interest rate fluctuations on behalf of all EUI entities.
 - v. This function ensures that EUI and its subsidiaries' and businesses' short-term working capital requirements are met and that there is an availability of cash on a day-to-day basis, which is essential to providing utility services.

Audit and Risk Management

83. The Audit and Risk Management department provides services the following services to EPCOR's Southern Bruce system and other EUI business units:
- i. Internal Audit; and,
 - ii. Insurance and Physical Risk Management.

- **Internal Audit**

84. The Internal Audit department provides services to EPCOR's Southern Bruce system and other EUI subsidiaries and businesses in the administration of the EUI's internal program that ensures compliance with CSOx, including:
- i. Providing administration, oversight, advisory and testing services to assist management in meeting its reporting obligations with respect to disclosure controls and procedures and internal controls over financial reporting;
 - ii. Coordinating quarterly CSOx sub-certifications with internal business process owners on the design and effectiveness of the key controls mitigating financial reporting risk; and

iii. In addition, the Internal Audit department continues to improve and align internal processes with the external auditor to effectively meet the objectives of this program.

- **Insurance and Physical Risk Management**

85. Insurance and Physical Risk Management manages the insurance requirements of EPCOR's Southern Bruce system and other EUI subsidiaries and businesses and has overall responsibility for EUI's corporate insurance program. This includes coverage determination, negotiation and placement of insurance contracts as well as surety bonds, facilitating insurer loss control activities, negotiating and settling insured losses and insurance contract/legal review including risk identification.
86. The Insurance and Physical Risk group manages the risk of damage to or caused by physical assets owned by EPCOR. This service ensures that all EUI operations are protected by the broadest coverage available in the insurance market. Having the appropriate amount of insurance is commonly required for debt issuances that might be secured by physical assets.

Human Resources Services

87. The services in the Human Resources ("HR") department include the administration and management of employee pension, compensation and benefits programs, support of recruitment efforts, job and organizational design, coaching and conflict resolution, collective bargaining and dispute resolution processes, succession and workforce planning, design and delivery of professional and leadership development courses, and performance management for all businesses within EUI. The services of that the HR department provides EPCOR's Southern Bruce system and other EUI businesses are categorized into the following functional areas:
- i. Total Rewards;
 - ii. Payroll Processing;
 - iii. Human Resources Consulting;
 - iv. Talent Management; and,
 - v. Labour Relations.

- **Total Rewards**

88. Total Rewards provides services related to the design and administration of the EUI groups' compensation, pension and benefits in order to appropriately attract, retain and engage employees. These services include wellness programs, benefits and pensions for all employees and compensation for professional, management and executive positions.
89. Human Resources Information System ("HRIS") and analytics support is also included in the Total Rewards area. This involves managing the development, ongoing enhancements and maintenance of the Oracle-based HRIS application. HRIS activities include data management and analysis, troubleshooting, and managing system enhancements.
90. The services provided by Total Rewards enable EPCOR's Southern Bruce system to provide utility services to customers. Total Rewards provides EPCOR's Southern Bruce system and other EUI subsidiaries and businesses with compensation programs, benefit and retirement programs, and maintains employee records. Total Rewards performs a key strategic function in developing a compensation program that positions EPCOR's Southern Bruce system and other EUI subsidiaries to successfully attract and retain employees.

- **Payroll Processing**

91. The Payroll Processing function performs the following activities in connection with paying employees' wages:
 - i. Maintains the employee master files, which form the foundation for all human resources and payroll functions including new-hire, life event changes, transfers, promotions, termination, and wage rate changes;
 - ii. Performs pension administration;
 - iii. Performs full payroll services, including bi-weekly payroll processing;
 - iv. Preparation of all statutory filings and source deduction and other remittances including workers compensation remittances; and
 - v. Develops and maintains appropriate payroll policies, procedures and controls for all EUI subsidiaries and assists in developing employee benefit policies.

- vi. Payroll Processing services enable EPCOR's Southern Bruce system to provide utility services to customers as it carries out its obligation as a utility service provider through its employees, and those employees must be paid for the work performed. In addition, the payroll processing group is responsible for submitting pension plan contributions, as applicable and payroll-related compliance requirements in each province that EUI works.

- **Human Resources Consulting**

92. The Human Resources Consulting group provides job and organizational design, coaching, conflict resolution, succession and workforce planning and performance management services to the corporate service departments. These services are required to ensure that each department is staffed appropriately to provide the services they deliver. Human Resources Consulting provides recruitment services, succession planning, and advice and support to managers regarding EUI's corporate policies and legislative and regulatory requirements for employee performance management. Human Resources Consulting also ensures the recruiting process adheres to corporate standards and policies and that union arbitration and non-union employee issues are resolved in accordance with corporate policy and legal statutes. These services allow for the recruitment, training and retention of high quality staff with technical and operational knowledge and experience within the corporate services departments.

- **Talent Management**

93. Talent Management provides services related to the provision of programs and tools that support the attraction of highly qualified employees and the development of our professional and leadership staff through the creation and presentation of employee development and leadership courses. This area is also responsible for new employee and leadership orientations that contribute to the success of integrating new hires into EUI and new managers into management as they move into more senior leadership positions. In addition, Talent Management also engages in career and succession planning, employee engagement, as well as talent planning to meet the overall business needs within EUI and its subsidiaries and businesses.
94. The services provided by Talent Management enable EPCOR's Southern Bruce system to provide utility services to customers. Talent Management provides EPCOR's Southern Bruce system and

other EUI subsidiaries and businesses with training and professional development opportunities to ensure their workforces are properly trained and engaged in their work. Talent Management provides vital leadership and assistance in developing well-trained, skilled and knowledgeable staff, positioning EPCOR's Southern Bruce system to successfully operate and manage their business.

- **Labour Relations**

95. Labour Relations is a key function within the HR department that manages and leads all required collective bargaining with EUI's various unions. This function also manages the dispute resolution and grievance process and provides labour relations advice to all EUI businesses and human resources staff pertaining to collective agreement application and legislative requirements.

Information Services

96. The Information Services ("IS") department provides the following services to EPCOR's Southern Bruce system and other EUI subsidiaries and businesses:

- i. Major Capital Projects;
- ii. Application Services; and
- iii. Infrastructure Operations.

- **Major Capital Projects**

97. Major Capital Projects manages the implementation of major applications and the installation of major computer hardware devices. In addition, project management services may extend to managing major projects of a non-information technology nature for EUI subsidiaries, such as constructing leasehold improvements. Major Capital Projects services include:
98. Planning and architecture services, including the creation and continuing maintenance of EUI's information services strategic plan, 5-year tactical business system plans (including 5-year and annual capital planning), information technology ("IT") architectural design services, as well as the elicitation and completion of all business requirements related to information technology projects;

99. Development of business cases to support utilities' requirements and the regulatory process, as well as the post-implementation review process;
100. Overall program and project execution management, including a governance and approval structure. Services include: management and oversight of all IT projects and project management services such as project integration, scope, time, cost, quality, human resource, communications, risk, and procurement management;
101. Project planning and architecture services such as data analysis and database design to integrate data; and
102. Project management office services, including progress reporting, cost forecasting, training, scheduling and continuous improvement.
103. EPCOR's Southern Bruce system is heavily dependent on IS infrastructure in providing utility services. It is a prudent practice for organizations to take a hands-on role in large capital IT projects and to have in place capital project processes and governance to manage both the delivery of and capital expenditures for each project.
 - **Application Services**
104. Application Services provides user support services related to shared business system applications such as the various Oracle modules (Financials, Human Resources Information System, Projects, Assets, Time and Labour) as well the various Southern Bruce specific business systems such as the geographic information systems, internet and intranet user support and database administration support.
105. Application Services allows EPCOR's Southern Bruce system to provide utility services as it is heavily dependent on IS infrastructure in providing utility services. The activities as outlined above, performed by the Application Services, support the corporate ERP application used by corporate services staff and staff within EPCOR. These systems provide the core finance and HR system functions to the organization. These systems must be maintained, and occasionally upgraded to meet vendor and other stakeholder requirements (e.g. regulatory change).

106. In addition to the important role this team plays in supporting and maintaining the critical finance and HR applications used by EPCOR's Southern Bruce system and the groups that provide Corporate Shared Services, the Application Services team provides both database and web design services. Both of these services increase the quality of the systems implemented at EUI and the web design team also enhances customers contact experience with EPCOR's Southern Bruce system.

- **Infrastructure Operations**

107. Infrastructure Operations provides the following services:

- i. Manages the operation and maintenance of the computer hardware platforms (i.e. servers, networks, etc.) and operating systems for shared applications (i.e. Oracle business system) and business unit specific systems applications;
- ii. Supports telecommunications services and desktop applications (i.e. all Microsoft applications including electronic mail);
- iii. Conducts cyber security threat and risk analysis and delivers IT security planning and services. The group ensures that data which is stored cannot be compromised and provides mitigation plans for threats or vulnerabilities that may jeopardize the systems;
- iv. Provides governance services such as oversight, management compliance monitoring of EUI's internal information services governance and control policies and procedures and oversight; and
- v. Manages EUIs internal system recovery for contingency planning testing such as disaster recovery and pandemic planning.

108. The Infrastructure Operations service is by nature a critical operational role, in that it provides oversight as well as strategic infrastructure and governance activities. This team provides governance and control services, including the development and maintenance of internal policies, procedures and controls for the outsourced services that provide the infrastructure backbone that EUI and its subsidiaries and businesses rely on. The infrastructure they support provides the base for the corporate and business specific applications and the communication network used

for EPCOR's Southern Bruce system and is sourced through this group to external service providers. As such, this group relies heavily on third party service providers. Infrastructure Operations' use of third party service providers is appropriate and fiscally prudent.

Supply Chain Management Services

109. The services in Corporate Supply Chain Management are:

- i. Corporate Procurement;
- ii. Mailroom;
- iii. Emergency Management and Business Resilience;
- iv. Facilities Management;
- v. Disaster Recovery Planning Facilities;
- vi. Security; and,
- vii. Supply Chain Management Corporate Services.

- **Corporate Procurement**

110. The Corporate Procurement group works to maintain policy and procedures; ensure compliance with legislation; manage vendors; manage/develop vendor contract terms and conditions; provide training and support of procurement processes; and conduct vendor contract negotiations, ensuring standardization and mitigation of contract risk exposures as required by EUI's remaining corporate services departments. Procurement performs market analysis, develops procurement strategies and manages the end to end procurement processes to ensure that corporate services departments obtain the best pricing available for their required goods and services.

- **Mailroom**

111. Mailroom services are provided to EUI locations and include processing incoming and outgoing internal mail between all EUI locations as well as external mail through outsourced couriers and Canada Post.

- **Emergency Management and Business Resilience**

112. The Emergency Management and Business Resilience program guides how EUI and its businesses prepares for, responds to and recovers from emergency situations, including naturally occurring hazards, events caused by humans or technology.

- **Facilities Management**

113. The Facilities Management department maintains and operates EUI's corporate facilities including budgeting and administration; planning, design, space and project management and move coordination; and tenant services such as managing of landscaping and snow removal at buildings. The services also include negotiating and managing facility leases; and paying the rent and operating costs associated with premises leased by EUI and its subsidiaries and businesses.

114. Real estate services ensure the staff and contractors operating within EPCOR's Southern Bruce system and other EUI subsidiaries have a safe, clean environment to work in, and that those facilities are leased or purchased at a reasonable price.

- **Disaster Recovery Planning Facilities**

115. Disaster Recovery Planning Facilities provides services for maintaining continuity of the critical information systems of EUI, EPCOR's Southern Bruce system, and EUI's other subsidiaries and businesses in the event of a disaster, including the operation and maintenance of an off-site data centre for IT infrastructure.

116. Disaster Recovery Planning Facilities services are a core competency for a utility such as EPCOR's Southern Bruce system. It is vital to ensure that the information systems critical to the utility's operations are maintained without disruption in the event of a disaster. Given the vital role of this function, it would not be reasonable for EPCOR's Southern Bruce system to entrust this function to an outsource provider.

- **Security**

117. Security provides continuous threat and risk analysis of all physical security respecting EUI's businesses and facilities, including those arising from criminals, terrorists and employees. Other services provided by this function include conducting training exercises, awareness

sessions, and providing guidance to prepare EPCOR's Southern Bruce system and other EUI businesses to prevent and minimize losses during an emergency or disaster. Security guard protection services are entirely outsourced across EUI.

- **Supply Chain Management Corporate Services**

118. Supply Chain Management Corporate Services is comprised of space rent and security associated with EUI's corporate services departments that are located in EUI's main corporate office located in downtown Edmonton, Alberta ("**EPCOR Tower**"). These costs support for the various corporate service departments and allow them to supply the Shared Services to EPCOR's Southern Bruce system and other EUI subsidiaries and businesses.

Legal Services

119. Legal Services is responsible for providing legal, governance, corporate secretarial and compliance related activities in support of EUI and its businesses and subsidiaries.

120. Legal Services include:

- i. Managing all claims and litigation affecting EUI and its subsidiaries and businesses;
- ii. Negotiating, drafting and monitoring material contracts and contractual matters with employees, vendors and other parties;
- iii. Creating and updating EUI's and its subsidiaries' standard form contracts and other precedent documents to reflect changes in law or business context;
- iv. Providing advice with respect to contracts entered into by EUI and its subsidiaries and businesses with its suppliers and customers;
- v. Providing legal research, advice, drafting of various documents and agreements and services on capital projects, mergers and acquisitions and other transactions undertaken by EUI and its subsidiaries and businesses;
- vi. Analyzing legal risks and providing advice to project teams regarding all legal issues which may affect the viability of a business initiative and/or project;

- vii. Providing legal research, advice and services on numerous other corporate/commercial, financing and securities matters; and
- viii. Providing advice, research and assistance on regulatory law matters, including regulatory applications.

121. Governance oversight services include:

- i. Reporting all material claims and litigation affecting EUI and its subsidiaries;
- ii. Providing oversight, advice and reports on transactions undertaken by EUI and its subsidiaries and businesses;
- iii. Providing advice regarding corporate governance matters, including information on company structure, ownership and directors' and officers' information;
- iv. Providing input into annual reports and filings as well as numerous corporate policies;
- v. Maintaining corporate records including registrations and preparation of supporting documentation of applications as it relates to changes to directors, officers and/or shareholders to comply with legislation; and
- vi. Preparing corporate documentation including supporting annual resolutions for all subsidiary corporations in order to comply with legislation. For example, appointing or dispensing with an auditor is requirement of business corporation legislation.

122. Corporate Secretarial services include providing assistance with EUI Board, Committee and Shareholder material submissions, preparing resolutions, attending and recording meeting minutes of all EUI Board, Committee and Shareholder meetings.

123. Legal Services provides records management services, which include developing, implementing and overseeing hardcopy and electronic document retention policies and practices.

124. Legal Services also provides internal oversight, advice and corporate governance respecting: legal matters related to company structure and ownership; claims and litigation affecting EUI and its subsidiaries; compliance with statutes (e.g., privacy legislation); and administration and

compliance with the Code of Conduct Regulation, EUI's Inter-Affiliate Code of Conduct, ARC, ENGLP's ARC Compliance Plan and EUI's Ethics Policy.

Health, Safety and Environment

125. The Health, Safety and Environment ("HSE") department functions include:
- i. Maintenance and ongoing implementation of the Integrated Health, Safety and Environment Management System, which conforms to ISO 14001 (Environment) and OHSAS 18001 (Health and Safety) requirements and is implemented across all businesses within EUI; and
 - ii. Trend analysis, evaluation, and reporting for EUI and its businesses to assist in ensuring that regulatory monitoring and reporting requirements are met.
126. EPCOR's Southern Bruce system has an obligation to ensure that its employees can perform their duties in a safe environment. Corporate HSE reduces potential costs associated with operational and litigation risk by creating corporate policies that minimize workplace and environmental incidents.

Public and Government Affairs

127. Public and Government Affairs provides the following services to EPCOR's Southern Bruce system and other EUI subsidiaries:
- i. Corporate Communications and Director Corporate Communications;
 - ii. Government Relations; and
 - iii. Community Relations.
- **Corporate Communications and Director Corporate Communications**
128. Corporate Communications provides services related to external communications, which includes corporate profile and reputation management, reporting of quarterly and annual financial results, issues management, and online communications for customers and the general public. Corporate Communications provides strategic advice in responding to customer or other issues that may arise in relation to EUI's business activities, or broader industry developments. Corporate

Communications also provides internal communication support services to the corporate services departments and manages issues of corporate wide interest and impact.

129. Corporate Communications services enable EPCOR's Southern Bruce system and other EUI subsidiaries to provide utility services to customers through facilitating timely and relevant communications and providing access to information.
130. The Director Corporate Communications is the director responsible for the Corporate Public and Government Affairs department and provides oversight for the services the groups provides to EUI and its subsidiaries.

- **Government Relations**

131. Government Relations provides liaison services and briefing support in relation to all three levels of government (federal, provincial, and municipal), as well as government agencies and staff, with respect to existing or proposed policies and legislation. Government Relations also provides analysis and advice to EUI businesses respecting the impact of current or contemplated government policy and legislation.
132. Government Relations services enable EPCOR's Southern Bruce system to provide utility services to customers by ensuring that government at all three levels are aware of issues that could impact EPCOR's Southern Bruce system and its customers. Government Relations staff work directly with elected officials and their key staff on behalf of EPCOR's Southern Bruce system on a regular basis to influence policy development and regulation change to minimize any potential negative impact on EPCOR's customers.

- **Community Relations**

133. The Community Relations team utilizes community engagement tools, processes and investment strategies to support EUI and its business' reputation and relationship objectives. This includes establishing the brand design and creative guidelines for all communications productions, developing and delivering education programs such as public safety awareness and school electrical safety awareness and developing on-line educational materials about electricity, water and energy conservation. The Community Relations group is also responsible for advancing the achievement of EUI's long-term plans by implementing strategies that enhance the profile,

reputation, and image of EUI with key audiences and providing strategic advice on the most effective means to interface with customers to ensure consistent, clear and proper messaging. EPCOR notes that a portion of Community Relations costs includes community donations and these costs have been removed and not included in the revenue requirement.

134. Services are also provided by this group to HR in support of employee recruiting, retention and engagement. This includes planning and delivering recruiting materials and planning and executing employee events.
135. Services provided by Community Relations enable EPCOR's Southern Bruce system and other EUI subsidiaries and businesses to provide utility services to customers. Community Relations is EUI's face in the community and ensures customers are aware as to who is providing utility services. Community Relations also makes items such as conservation, customer service and safety matters accessible and understandable to the general public.

Incentive Compensation

136. Corporate incentive compensation is paid to corporate services employees based on individual performance ratings and EUI's overall annual corporate targets. EUI's structure for compensating its non-union employees has four components: base compensation (annual salary), employer paid benefits, STI, and Mid Term Incentive ("MTI") for participating directors, vice presidents and executives. EUIs structure for compensating unionized employees has three components: base compensation (hourly wages / annual salaries), employer paid benefits and STI. The compensation was designed to bring employee total compensation to a level which is at par with comparable positions in the market from which EUI must draw employees (i.e. to market value). The program itself is not a separate service, but the costs of any incentives are tracked separately.

Asset Usage Fees

- **Overview of Allocated Corporate Asset Usage Fees**

137. EUI charges fees relating to general plant assets owned by EUI that are used in providing corporate services to EUI businesses. These fees are referred to as Corporate Asset Usage Fees. The categories of assets for which Corporate Asset Usage Fees are charged include the following:

- i. Leasehold Improvements – EPCOR Tower
- ii. HRIS;
- iii. IS Infrastructure;
- iv. Oracle Financial System;
- v. Disaster Recovery Leasehold;
- vi. Equipment – EPCOR Tower
- vii. Furniture and Fixtures; and
- viii. Vehicles.

138. The forecast Corporate Asset Usage Fee for each category of corporate assets comprises both a “return of” capital (or depreciation expense) and a “return on” capital. The return on capital component is calculated using EUI’s weighted average cost of capital

- **Leasehold Improvements – EPCOR Tower**

139. In order to meet EUI’s requirements at EPCOR Tower certain costs for construction of tenant space and structural components of the information systems data center were incurred.

- **HRIS**

140. The costs relate to the HRIS software application that is used by EUI’s HR department to manage the employees of EUI and its subsidiaries, including such things as recruiting, hiring, managing and paying employees (including the calculation of pensions, Canada Pension Plan, Employment Insurance, income tax and other payroll deductions).

- **IS Infrastructure**

141. The IS Infrastructure costs includes servers, electronic storage devices, information system networks, desktops and IS applications used by corporate services departments to provide services to EPCOR’s Southern Bruce system and other EUI subsidiaries and businesses.

- **Oracle Financial System**

142. These costs relate to the Oracle Financial System which is the current financial application that is used to pay invoices, record and report financial information, prepare financial statements, calculate depreciation, purchase goods and services and manage project costs. The software application, Oracle Financials, uses modules that include accounts payable, accounts receivable, general ledger, purchasing, projects and fixed assets.

- **Disaster Recovery Leasehold**

143. EUI developed and maintains an offsite IS disaster recovery environment. These fees represent the costs of maintaining the off-site data centre.

- **Equipment – EPCOR Tower**

144. EPCOR Tower is utilized by a few different companies and the owner of the building has security in place for the entire tower. These fees represent EUI's share of the costs of the security system for the entire tower.

- **Furniture and Fixtures**

145. These asset costs represent furniture such as offices, workstations, chairs, tables, file cabinets and shelves used by employees in corporate services departments.

- **Vehicles**

146. Vehicle assets are used for security and for employees at EPCOR Tower to travel to various sites through performing the services they provide in support of EUI and its subsidiaries.

B. Services Received from EPCOR Water Services Inc.

Overview

147. EWSI provides various Shared Service functions and management and technical services to EPCOR's Southern Bruce system. These services are provided on a shared basis in order to achieve cost efficiencies within the businesses supported by EWSI.
148. Section 4.5 describes the Corporate Shared Services and associated costs related to services that are provided from EUI to EPCOR's Southern Bruce system. These services are provided by functional groups that are part of the EUI corporate group while additional Shared Services are provided by some functional groups from within EWSI and ECSI. For some functional categories, such as Human Resources, Supply Chain and Public and Government Affairs, Shared Services are provided from both EUI and EWSI. In these instances, the services provided by EUI tend to be limited to governance, oversight and broad policy and systems considerations, while the services provided by EWSI are more tactical and are specifically driven by the business needs of EPCOR's Southern Bruce system.

Shared Services Provided by EWSI

149. The specific Shared Services that EWSI provides, including the methodologies used to determine the inter-corporate service charges, are described below.

Supply Chain Management

150. Supply Chain Management are services for purchasing and strategic sourcing including management of the end-to-end procurement process for the goods required by EPCOR's Southern Bruce system. Specific functions include:
- i. Administration of procurement services, including but not limited to competitive bidding, purchase order creation, issuing requests for quotations and requests for proposals, contract administration and supplier relationship management;
 - ii. Setting and managing standards of products and services;
 - iii. Setting terms of payment;

- iv. Administration of the warehousing and materials management services; and
- v. Fleet management including general oversight and administration.

Public and Government Affairs

151. Public and Government Affairs includes charges related to the stakeholder and public consultation requirements of EPCOR's Southern Bruce system. Specific functions include:
- i. Stakeholder relations and public consultation services;
 - ii. Internal communications related to EPCOR Southern Bruce matters; and
 - iii. External communications including the coordination of EPCOR's considerations such as public safety notices, performance reports, public addresses and presentations, print collateral, and operational issues management.

Human Resources

152. Human Resources supports functions necessary to carry on the business including, without limitation, the following functions:
- i. Human resources management, and human resources consulting;
 - ii. Talent management including recruitment support for EPCOR's Southern Bruce system; and
 - iii. Disability management which involves facilitating the return to work scenarios for short-term disability, long-term disability as well as Workplace Safety and Insurance Board and non-supported claims management.

Training and Development

153. The Training and Development department provides services necessary to carry on the business including, without limitation, the following functions:
- i. Design, development and delivery of technical training to operations staff;
 - ii. Support in the development of standard operating procedures and other training documentation; and

- iii. Monitoring compliance with regulatory requirements to maintain continuous and current health, safety and technical training.

Shared Services Allocation

154. Table 4-8 below provides information on the cost allocators used to allocate Shared Services costs from EWSI to EPCOR’s Southern Bruce system and to the other business supported within EWSI. The Shared Services costs are determined on a cost recovery basis in accordance with the Affiliate Relationship Code for Gas Utilities (“ARC”), and ENGLP’s ARC Compliance Plan and are reflected in a Service Agreement between the parties. The allocation methodologies have been designed to ensure that the allocation of EWSI’s Shared Services costs are fair and reasonable, cost-effective, predictable and reflect the benefit received by function or cost causation. Consistent with the approach for the allocation of EUI Corporate Shared Services, certain costs are be allocated based on a composite cost allocator which factors in the businesses’ share of group revenues, assets, and headcount.

Table 4-8: Allocation of EWSI Financial and Administrative Costs - Cost Allocators

Responsibility Centre and Function	Allocator
Public and Government Affairs	Composite
Training and Development	Functional Cost Causation – Headcount
Human Resources	Functional Cost Causation – Headcount
Supply Chain Management	Composite

Management and Technical Services Provided By EWSI

155. In addition to the Shared Services described above, EWSI will provide capital planning and management services to EPCOR’s Southern Bruce system. This service is provided in accordance with the provisions outlined in the ARC and ENGLP’s ARC Compliance Plan, including pricing such service based on fully loaded cost where no reasonably competitive market exists for such services. Fully loaded cost includes without limitation labour charges at a standard salary and labour rate, plus sectional overhead and burden, and actual vehicle, material, and contractor and out of pocket expenses incurred for the task.

156. Capital planning and management services include those necessary to carry on the business including, without limitation, providing support, management, and oversight of the capital planning, justification, approval, tracking and reporting processes.

C. Services Provided by EPCOR Commercial Services Inc.

Overview

157. ECSI provides Shared Services and management and technical services to EPCOR's Southern Bruce system. These services are provided on a shared basis in order to achieve cost efficiencies within the businesses supported by ECSI.

Shared Services Provided by ECSI

Senior Vice President of Commercial Services

158. The SVP, Commercial Services provides oversight, leadership and governance to EPCOR's Southern Bruce system. The costs for this service include compensation of the SVP, Commercial Services, together with associated ancillary costs.

Finance

159. Provides financial services such as financial oversight, financial reporting, asset accounting and financial oversight of capital projects to EPCOR.

Shared Services Allocation

160. The Shared Services costs are determined on a cost recovery basis in accordance with the ARC and ENGLP's ARC Compliance Plan and are reflected in a Service Agreement between the parties. The allocation methodologies have been designed to ensure that the allocation of ECSI's Shared Services costs are fair and reasonable, cost-effective, predictable and reflect the benefit received by function or cost causation, and are reviewed on an ongoing basis. For the SVP, Commercial Services the allocation is estimated according to time spend and for Finance the allocator is a composite of revenue, assets and headcount.

Management and Technical Services Provided by ECSI

161. ECSI provides various management and technical services to EPCOR's Southern Bruce system. Any such service is provided in accordance with the provisions outlined in the ARC and ENGLP's ARC Compliance Plan, including pricing such service based on fully loaded cost where no reasonably competitive market exists for such services. Fully loaded cost includes, without limitation, labour charges at a standard salary and labour rate, plus sectional overhead and burden, and actual vehicle, material, and contractor and out of pocket expenses incurred for the task. The management and technical services provided by ECSI to EPCOR's Southern Bruce system include operational planning and management.

Operational Planning and Management

162. Operational planning, management and support services necessary to carry on the business include, without limitation, the following functions:

- i. Access to specialized engineering and technical expertise and intellectual property related to utility operations in support of operations, maintenance, asset management and capital planning and project management;
- ii. Development and maintenance of operations procedures, maintenance protocols, emergency response and disaster recovery plans;
- iii. Access to computer based asset management software; and
- iv. Assistance for the review of emerging technical codes and standards and assessing the implications for the utility.

D. Services Provided by EPCOR Ontario Utilities Inc.

163. EOUI provides Shared Services to the EPCOR's Southern Bruce system. These services include leadership and oversight from the VP, Ontario Region, along with Board of Directors services from EOUI as the general partner of ENGLP. These services are provided on a shared basis in order to achieve cost efficiencies within the businesses supported by EOUI.
164. The Shared Services costs are determined on a cost recovery basis in accordance with the Arc and ENGLP's ARC Compliance Plan and are reflected in a Service Agreement between the entities. The allocation methodologies have been designed to ensure that the allocation of EOUI's Shared Services costs are fair and reasonable, cost-effective, predictable and reflect the benefit received by function or cost causation, and are reviewed on an ongoing basis.

Governance

165. EOUI's Board of Directors (the "EOUI Board") provides direct governance to ENGLP and EPCOR's Southern Bruce system. The governance functions include:
- i. Adopting, reviewing, monitoring and directing the implementation of fundamental strategies, plans and policies;
 - ii. Adopting, reviewing and monitoring annual capital and operating budgets;
 - iii. Selection and appointment of the VP, Ontario Region;
 - iv. Monitoring and reviewing management's performance, and providing advice and counsel to management;
 - v. Business and risk management, including monitoring corporate performance against strategic, operating and capital plans;
 - vi. Approving material acquisitions and dispositions;
 - vii. Approving dividend transactions and equity issuances as well as any issuance, refinancing or prepayment of long-term debt;
 - viii. Appointment of the auditors of the annual financial statements (subject to consultation with the Audit Committee of the EUI Board of Directors); and,

- ix. Approval of financial statements.
- 166. EOUI Board costs include director's fees as applicable, director and officer insurance costs, travel expenses and other related expenses.
- 167. The membership of the EOUI Board includes both independent and EUI internal members in accordance with the ARC.

Ontario Facilities

- 168. Leasehold costs are allocated to the Southern Bruce natural gas distribution system for the EPCOR office held in Toronto, Ontario. This office is the primary work location for the VP, Ontario Region.

VP, Ontario Region

- 169. This includes compensation of the VP, Ontario Region together with associated ancillary costs. The General Manager for EPCOR's Southern Bruce operations reports directly to the VP, Ontario Region, who is based in Ontario and provides necessary leadership and oversight for ENGLP and its businesses.

Finance

- 170. Working with the Finance resources in ECSI, Ontario Finance personnel will provide oversight and support of the financial reporting and asset accounting for EPCOR.

Regulatory

- 171. Support the development, coordination of regulatory applications, monitor and coordinate activities or initiatives from government, departments or agencies that may affect EPCOR and manage the interface between these external stakeholders.

Health, Safety and Environment ("HS&E")

- 172. Ensure ENGLP's health, safety and environment practices and procedures are well designed and in compliance with legislation and compatible with EUI's safety management standards and procedures as well as working with EPCOR staff to implement those practices and procedures.

4.3.3.3 Purchase of Non-Affiliate Services

173. EPCOR utilizes external suppliers, contractors or consultants (“**Contractors**”) to carry out work for which it does not have the internal expertise or specialized equipment to cost effectively complete the work. From an overall cost perspective, it is less expensive for EPCOR to use Contractors for these activities compared to maintaining the staff and/or equipment necessary to competently carry out this work internally. At times, EPCOR may work with Contractors to manage work “peaks” associated with higher than normal work levels, “one off” projects, and to execute work to meet timelines as necessary. EPCOR will not overstaff its Southern Bruce operations in order to handle peak work-loads as hiring additional staff has associated higher costs..
174. EPCOR will be working with various non-affiliates during the construction phase of the distribution system including but not limited to companies such as Aecon Group Inc. and Stantec Inc. that participated in the CIP process with EPCOR. EPCOR has a long-standing relationship with these entities, and with them as service providers, submitted a cost-competitive proposal in its CIP submission. Under the CIP process, EPCOR was a proponent itself and was required to qualify based on the costing and ability for it to provide natural gas services to the Southern Bruce communities based on the agreements it created with its partners. As such, qualification and cost competitiveness have already been established for partners during the construction period of the Southern Bruce system.
175. EPCOR’s procurement policy, which is included as Exhibit 4, Tab 1, Schedule 5, is applicable to all its affiliates. The policy highlights EPCOR’s policy and guidelines over the procurement of goods and services. Schedule-A of the policy includes levels of signing authority for procurement of goods and services.
176. EPCOR abides by the New West Partnership Trade Agreement (NWPTA), which stipulates most pieces of work greater than \$75,000 (greater than \$200,000 for construction) in value should be competitively bid through a public posting process if there is not an existing agreement in place that can be leveraged. EPCOR also adheres to all Canadian trade partnership agreements as applicable, such as the Comprehensive Economic Trade Agreement and Canadian Free Trade Agreement.

177. EPCOR Southern Bruce is in compliance with its procurement policy.

4.3.3.4 One-Time Costs

178. EPCOR is not proposing any one-time costs which have occurred in the historical, bridge or test years that are to be recovered over the Custom IR period.

4.3.3.5 Low Income Programs

179. This section details EPCOR’s low-income assistance programs. The Low-income Energy Assistance Plan (“LEAP”) has been developed by the OEB to aid with payment of natural gas bills to eligible low-income customers.

180. The program includes emergency financial assistance and the application of special customer service practices and standards for eligible low-income customers. To qualify for the program, customers must meet the income eligibility criteria as defined by the OEB. LEAP emergency financial assistance is administered through a social service agency, and EPCOR is partnered with Ontario Works in Bruce County for this service.

181. During the CIP process EPCOR did not include costs related to LEAP funding. Utilities are required to provide, annually, the greater of 0.12% of total distribution revenue, or \$2,000. EPCOR has forecasted LEAP funding for the 10-year rate stability period as provided in Table 4-9 below.

Table 4-9: LEAP Funding

		(Thousands of Dollars)										
Description		Col. 1 2019	Col. 2 2020	Col. 3 2021	Col. 4 2022	Col. 5 2023	Col. 6 2024	Col. 7 2025	Col. 8 2026	Col. 9 2027	Col. 10 2028	Col. 11 Cumulative
Row 1	LEAP Funding Cost	2.00	3.66	5.54	6.98	7.97	8.63	8.95	9.11	9.27	9.42	71.53

4.3.3.6 Charitable and Political Donations

182. EUI is committed to the communities it operates in and the communities its employees participate in. Within EUI, employees volunteer thousands of hours of their time each year. Employees volunteer on their own time, as well as through EUI organized initiatives with its community partners. Further, EUI supports its employee community volunteer efforts through its 'Helping Hands Program' whereby grants are provided to the charitable organizations that its employees are directly involved with and have invested a minimum number of volunteer hours. This provides employees a way to raise donations to causes its employees care deeply about. EUI and its employees also raise funds through an annual United Way campaign and EUI further supports the communities it works in through its education focused corporate giving program.
183. EPCOR is committed to becoming a long-term community partner in within the Southern Bruce franchise area, and has developed strong relationships with the three municipal councils in the area.
184. EPCOR is not requesting any of its charitable donations or volunteer work be recovered through rates.

4.4 Depreciation Expense

1. The following section details EPCOR's Southern Bruce depreciation expenses that support its revenue requirement as determined during the CIP process. Depreciation expense schedules are provided for the 10-year rate stability period.
2. Since EPCOR's Southern Bruce system will be a new system, information for historical years, or changes in depreciation methodologies are not applicable.
3. In accordance with Procedural Order 8, the proponents of the CIP process were to use Union's approved depreciation rates in effect at the time of CIP submission.⁶ The depreciation rates used during the CIP process were those as approved in EB-2011-0210.

"The OEB accepts this aspect of the CIP agreement and finds that any depreciation rates used should be based on Union's OEB-approved depreciation rates. The proponents should confirm the depreciation rates used in their proposals."

4. As it was determined that EPCOR would use Union's depreciation rates in determining its revenue requirement it has not undertaken a depreciation study. EPCOR expects that it would include a depreciation study as part of its cost of service application for rebasing in year 11.
5. On October 2, 2017, EPCOR and Union filed a document with the Board outlining the details of agreed parameters established by the two parties.⁷ In this letter the parties identified depreciation rates for system assets as follow:

⁶ PO8, page 5 of 14.

⁷ EB-2016-0137/0138/0139, Union and EPCOR Correspondence, dated October 2, 2017.

Table 4-10: Asset Class Depreciation Rates

Plant Grouping Code	Description	Book Depreciation Rate ⁸
TRANSMISSION PLANT		
46100	Land Rights Not tax deductible (25%) Tax deductible (75%)	1.76%
46200	Structures and Improvements Buildings (Including systems to run buildings)	2.03%
46501	Mains - Metallic	1.98%
46600	Compressor Equipment	3.23%
46700	Measuring and Regulating Equipment	2.60%
DISTRIBUTION PLANT- SOUTHERN OPERATIONS		
47100	Land Rights	1.65%
47200	Structures and Improvements Buildings (Including systems to run buildings)	2.22%
47301	Services - Metallic	2.81%
47302	Services - Plastic	2.51%
47400	Regulators	5.00%
47401	Regulator and Meter Installations	2.80%
47501	Mains - Metallic	2.83%
47502	Mains - Plastic	2.31%
47700	Measuring and Regulating Equipment	3.66%
47800	Meters	3.82%

6. EPCOR's CIAC to Union Gas related to the Owen Sound Reinforcement is capitalized and depreciated at a rate of 1.98%, consistent with the depreciation rate of Transmission Mains-

⁸ EB-2011-0210, Depreciation rates per Union Gas 2013 Rate Case Evidence, Exhibit D3, Tab 4, Schedule 1.

Metallic. EPCOR's CIAC to Union Gas for the Dornoch Station is capitalized and depreciated at the rate of 2.60%, which is consistent with the Transmission Measuring and Regulating Equipment. Vehicles are not included in the list of common assumptions. Vehicles are depreciated at a rate of 11.11%, which is in accordance with rates used for other EPCOR operations.

7. EPCOR adopts half-year rule for the purpose of calculating annual depreciation expenses. The asset is depreciated at half of the asset's annual depreciation rate in the year the asset is put into service or is retired. Given that the Southern Bruce distribution system will be new, no asset retirement obligation during the rate stability period is forecasted. The continuity schedules during the 10-year rate stability period by asset groups including the forecasted depreciation expense is detailed in Exhibit 4 Tab 1 Schedule 3.
8. EPCOR's depreciation policy is included in Exhibit 4, Tab 1, Schedule 6.

4.5 Taxes

1. The following section details EPCOR's Southern Bruce income and property tax calculations supporting its revenue requirement. Forecasted taxes are provided for the 10-year rate stability period rather than a specific test year as a revenue requirement has been established for that period.
2. With no historical information to draw from, there are no historical years, reconciliation, or recent federal and provincial tax returns to provide.

4.5.1 Income Taxes

3. In accordance with Procedural Order 8, the proponents of the CIP process agreed to use common tax rates and to exclude any property tax holidays.⁹

"Both proponents agreed to use common tax rates and exclude any tax holidays from the municipality from their proposals. The OEB accepts this aspect of the CIP agreement and finds that tax rates should be common and included in each proposal, and that any municipal tax holidays from the municipalities should be excluded from the proposals."

4. The proponents agreed to apply a corporate tax rate of 26.5%, the sum of the federal tax rate, and the Ontario provincial tax rate.¹⁰

"Both proponents will apply a corporate income tax rate of 26.5%, which is the sum of 15% federal tax rate and 11.5% Ontario provincial tax rate."

5. With a growing system generating revenues below costs in the early years, EPCOR forecasts it will generate tax credits from losses generated until year 2025. The determinations of the tax credits and balances over the 10-year rate stability period are provided in Exhibit 4 Tab 1 Schedule 4.
6. Detailed calculations of forecasted regulatory taxable income and income tax have been provided in Exhibit 4 Tab 1 Schedule 2.

⁹ PO8, page 6 of 14.

¹⁰ EB-2016-0137/0138/0139, Union and EPCOR Correspondence, dated October 2, 2017.

4.5.2 Property Taxes

7. Forecasted property taxes are the product of forecasted assessment base and the applicable property tax rates. The forecasted property tax expense is provided in Exhibit 4 Tab 1 Schedule 4.
8. For calculating property taxes, the assessment base is the aggregated assessed values of all fixed assets. The majority of EPCOR's Southern Bruce fixed assets are pipelines. The assessed values for pipeline assets are forecasted as the product of the linear length of the asset and the corresponding assessment rate stipulated by Ontario Regulation 397/16 published on November 28, 2016 under the Ontario Assessment Act. The regulation is expected to be updated once every four years with increases in the assessment rate equal to the four-year compounded rate of inflation. The next regulation update is expected to take place in 2021. The assessed values for non-pipeline assets are forecasted to be its gross book value, which includes the cost of material, installation, interest during construction and capitalized overheads, escalated once every four years at the four-year compounded rate of inflation.
9. For the purpose of forecasting property tax expense in the rate stability period, the municipalities' 2018 property tax rates are adopted and are shown in the table below:

Table 4-11: Property Tax Rates

		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
	Description	Kincardine	Arran-Elderslie	Huron-Kinloss	Brockton	West Grey	Chatsworth
Row 1							
Row 2	Municipal Rate	0.66%	0.75%	0.61%	0.79%	0.56%	0.60%
Row 3	County Rate	0.39%	0.39%	0.39%	0.39%	0.33%	0.33%
Row 4	School Rate	0.98%	0.98%	0.98%	0.98%	1.09%	1.09%
Row 5	Sum	2.03%	2.12%	1.98%	2.16%	1.97%	2.02%

10. For the Rate Stability Period, the Municipality of Kincardine, the Municipality of Arran-Elderslie and the Township of Huron-Kinloss have provided a financial contribution equal to the municipal property taxes associated with the natural gas system assets.

4.6 Demand Side Management (“DSM”)

1. This section outlines EPCOR’s proposal regarding DSM programs and expenses for the Southern Bruce operations. EPCOR does not propose to include a DSM program at this time as it expects the majority of its customers to be acquiring efficient equipment as they convert to natural gas.
2. With no historical information to draw from, details regarding prior funding approvals are not provided.
3. In accordance with Procedural Order 8, EPCOR excluded DSM costs from its proposal during the CIP process.¹¹

“Both proponents agreed to exclude DSM costs in their proposals. The OEB accepts this aspect of the CIP agreement and finds DSM costs should be excluded from the proposals.”

4. The DSM framework seeks to encourage energy conservation beginning with the utility and targets reductions in natural gas consumption in the Ontario market by encouraging customers to reduce consumption with reduced bills.
5. One driver of consumption reduction is system efficiencies. Typically, older systems are less efficient and do not capture the full extent of energy available per unit of natural gas.
6. As an expansion project, EPCOR’s Southern Bruce natural gas distribution system will include customers who have recently converted to natural gas, or customers with new homes that begin with a natural gas connection. Customers who convert often install new and efficient heating systems including furnaces and water heaters. As the process of converting to natural gas creates a more efficient energy conservation environment, it is proposed that EPCOR does not implement a ratepayer funded DSM program at this time. EPCOR will re-evaluate the need for a DSM program to promote energy conservation beyond high-efficiency natural gas conversion in its next rate filing.

¹¹ PO8, page 6 of 14.

OM&A Schedules

Forecasted Upstream Costs (Thousands of Dollars)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Cumulative
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	
Operating Expense											
Row 1 Gas Supply Commodity Cost	187	646	1,179	1,599	1,857	2,003	2,058	2,070	2,080	2,085	15,763
Row 2 Transportation	83	492	495	498	499	500	500	500	500	500	4,567
Row 3 Storage	51	92	128	152	168	177	180	182	185	185	1,500
Row 4 Load Balancing Administration	6	31	35	39	41	42	43	43	43	43	366
Row 5											
Row 6 Grand Total	327	1,261	1,837	2,288	2,565	2,722	2,780	2,795	2,808	2,814	22,196

OM&A Budget - Nominal Dollars (Thousands of Dollars)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Cumulative
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	
Operating Expense											
Row 1 Salaries & Wages & Benefits	615	1,246	1,185	1,200	1,215	1,231	1,246	1,262	1,278	1,294	11,772
Row 2 Utilities	9	18	18	18	19	19	19	19	19	19	178
Row 3 Billing & Collection	15	62	74	88	101	107	110	112	114	116	901
Row 4 Insurance	12	41	53	59	59	60	61	62	62	63	532
Row 5 Repairs & Maintenance	5	28	40	48	55	58	60	62	62	63	481
Row 6 Vehicle & Travel	27	55	55	56	57	57	58	59	60	60	543
Row 7 Office & Administrative	54	110	111	112	114	115	117	118	120	121	1,093
Row 8 Contractors & Emergency Services	52	119	131	139	146	150	152	155	157	159	1,359
Row 9 Shared Services	92	423	495	546	589	615	631	644	657	669	5,361
Row 10 Marketing	13	26	26	27	27	27	28	28	28	29	259
Row 11 Capitalization	-338	-685	-474	-480	-486	-373	-378	-383	-388	-134	-4,119
Row 12											
Row 13 Grand Total	555	1,443	1,715	1,813	1,895	2,067	2,103	2,137	2,171	2,461	18,360

OM&A Budget - 2018 Real Dollars (Thousands of Dollars)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Cumulative
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	
Operating Expense											
Row 1 Salaries & Wages & Benefits	607	1,215	1,141	1,141	1,141	1,141	1,141	1,141	1,141	1,141	10,949
Row 2 Utilities	9	17	17	17	17	17	17	17	17	17	165
Row 3 Billing & Collection	15	61	71	84	95	100	101	101	102	102	832
Row 4 Insurance	12	40	51	56	56	56	56	56	56	56	493
Row 5 Repairs & Maintenance	5	27	39	46	52	54	55	55	56	56	444
Row 6 Vehicle & Travel	27	53	53	53	53	53	53	53	53	53	505
Row 7 Office & Administrative	53	107	107	107	107	107	107	107	107	107	1,016
Row 8 Contractors & Emergency Services	51	116	126	132	137	139	139	140	140	140	1,261
Row 9 Shared Services	90	413	477	519	553	571	577	582	586	589	4,958
Row 10 Marketing	13	25	25	25	25	25	25	25	25	25	241
Row 11 Capitalization	-334	-668	-456	-456	-456	-346	-346	-346	-346	-118	-3,873
Row 12											
Row 13 Grand Total	548	1,407	1,652	1,724	1,779	1,917	1,925	1,932	1,938	2,169	16,990

EXHIBIT 4 - Depreciation by Asset Groups

Depreciation Rates by Asset Groups

	Col. 1	Col. 2
Asset Group	Depreciation Rate	
Row 1	CIAC to Enbridge - Owen Sound Reinforcement	1.98%
Row 2	CIAC to Enbridge - Station	2.60%
Row 3	Distribution Mains - Metallic	2.83%
Row 4	Distribution Land Rights	1.65%
Row 5	Distribution Mains - Plastic	2.31%
Row 6	Distribution Services Plastic	2.51%
Row 7	Distribution Meters	3.82%
Row 8	Distribution Measuring and Regulating Equip.	3.66%
Row 9	Vehicles	11.11%
Row 10	Machinery and Equipment	6.00%

Asset Category

CIAC to Enbridge - Owen Sound Reinforcement

Projected Continuity Schedule of CIAC to Enbridge - Owen Sound Reinforcement

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	2,363	2,363	2,363	2,363	2,363	2,363	2,363	2,363
Row 4	Additions	2,363	0	0	0	0	0	0	0	0
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	2,363	2,363	2,363	2,363	2,363	2,363	2,363	2,363	2,363
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	-23	-70	-116	-162	-209	-255	-301	-348
Row 10	Depreciation	-23	-46	-46	-46	-46	-46	-46	-46	-46
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	-23	-70	-116	-162	-209	-255	-301	-348	-440

Asset Category

CIAC to Enbridge - Station

Projected Continuity Schedule of CIAC to Enbridge - Station

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	2,019	4,039	6,060	8,082	10,105	12,129	14,154	16,180
Row 4	Additions	2,019	2,020	2,021	2,022	2,023	2,024	2,025	2,026	2,027
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	2,019	4,039	6,060	8,082	10,105	12,129	14,154	16,180	18,207
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	-39	-116	-193	-270	-348	-425	-502	-579
Row 10	Depreciation	-39	-77	-77	-77	-77	-77	-77	-77	-77
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	-39	-116	-193	-270	-348	-425	-502	-579	-656

Asset Category

Distribution Mains - Metallic

Projected Continuity Schedule of Distribution Mains - Metallic

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	31,120	25,915	25,915	25,915	25,915	25,915	25,915	25,915
Row 4	Additions	31,120	-5,205	0	0	0	0	0	0	0
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	31,120	25,915	25,915	25,915	25,915	25,915	25,915	25,915	25,915
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	-445	-1,111	-1,851	-2,592	-3,332	-4,072	-4,813	-5,553
Row 10	Depreciation	-445	-666	-740	-740	-740	-740	-740	-740	-740
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	-445	-1,111	-1,851	-2,592	-3,332	-4,072	-4,813	-5,553	-6,294

Asset Category

Distribution Land Rights

Projected Continuity Schedule of Distribution Land Rights

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	22	37	37	37	37	37	37	37
Row 4	Additions	22	15	0	0	0	0	0	0	0
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	22	37	37	37	37	37	37	37	37
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	0	-1	-1	-2	-2	-3	-4	-4
Row 10	Depreciation	0	0	-1	-1	-1	-1	-1	-1	-1
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	0	-1	-1	-2	-2	-3	-4	-4	-5

Asset Category

Distribution Mains - Plastic

Projected Continuity Schedule of Distribution Mains - Plastic

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	9,418	21,855	21,981	22,109	22,241	22,390	22,587	22,752
Row 4	Additions	9,418	12,437	126	128	132	149	197	164	162
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	9,418	21,855	21,981	22,109	22,241	22,390	22,587	22,752	23,007
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	-110	-437	-946	-1,459	-1,975	-2,494	-3,017	-3,544
Row 10	Depreciation	-110	-327	-510	-513	-516	-519	-523	-527	-531
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	-110	-437	-946	-1,459	-1,975	-2,494	-3,017	-3,544	-4,075

Asset Category

Distribution Services Plastic

Projected Continuity Schedule of Distribution Services Plastic

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	1,525	4,280	6,428	7,695	8,796	9,347	9,513	9,652
Row 4	Additions	1,525	2,755	2,148	1,267	1,101	552	166	139	137
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	1,525	4,280	6,428	7,695	8,796	9,347	9,513	9,652	9,789
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	-19	-85	-219	-396	-602	-829	-1,064	-1,304
Row 10	Depreciation	-19	-66	-134	-177	-206	-227	-236	-240	-243
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	-19	-85	-219	-396	-602	-829	-1,064	-1,304	-1,547

Asset Category

Distribution Meters

Projected Continuity Schedule of Distribution Meters

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	581	1,536	2,223	2,645	3,012	3,196	3,252	3,298
Row 4	Additions	581	955	687	422	367	184	55	46	46
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	581	1,536	2,223	2,645	3,012	3,196	3,252	3,298	3,343
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	-11	-52	-124	-218	-327	-446	-570	-696
Row 10	Depreciation	-11	-41	-72	-94	-109	-119	-124	-126	-128
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	-11	-52	-124	-218	-327	-446	-570	-696	-824

Asset Category

Distribution Measuring and Regulating Equipmt.

Projected Continuity Schedule of Distribution Measuring and Regulating Equipmt.

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	1,022	1,481	1,589	1,589	1,589	1,589	1,589	1,589
Row 4	Additions	1,022	459	107	0	0	0	0	0	0
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	1,022	1,481	1,589	1,589	1,589	1,589	1,589	1,589	1,589
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	-19	-59	-116	-175	-233	-292	-351	-410
Row 10	Depreciation	-19	-40	-57	-59	-59	-59	-59	-59	-59
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	-19	-59	-116	-175	-233	-292	-351	-410	-469

Asset Category

Vehicles

Projected Continuity Schedule of Vehicles

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	475	475	475	475	475	475	475	982
Row 4	Additions	475	0	0	0	0	0	0	507	0
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	475	475	475	475	475	475	475	982	982
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	-26	-79	-132	-185	-237	-290	-343	-396
Row 10	Depreciation	-26	-53	-53	-53	-53	-53	-53	-53	-81
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	-26	-79	-132	-185	-237	-290	-343	-396	-477

Asset Category

Machinery and Equipment

Projected Continuity Schedule of Machinery and Equipment

(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1										
Row 2	Gross Fixed Assets									
Row 3	Opening Balance	0	0	328	328	328	328	328	328	328
Row 4	Additions	0	328	0	0	0	0	0	0	0
Row 5	Retirement	0	0	0	0	0	0	0	0	0
Row 6	Closing Balance	0	328	328	328	328	328	328	328	328
Row 7										
Row 8	Accumulated Depreciation									
Row 9	Opening Balance	0	0	-10	-29	-48	-68	-87	-106	-126
Row 10	Depreciation	0	-10	-19	-19	-19	-19	-19	-19	-19
Row 11	Retirement	0	0	0	0	0	0	0	0	0
Row 12	Closing Balance	0	-10	-29	-48	-68	-87	-106	-126	-145

EXHIBIT 4 - Tax Schedules

Income Tax
(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1 Distribution Revenue	589	3,050	4,621	5,818	6,646	7,190	7,455	7,594	7,727	7,846
Row 2 less: O&M Expense	-555	-1,443	-1,715	-1,813	-1,895	-2,067	-2,103	-2,137	-2,171	-2,461
Row 3 less: Property Tax	-331	-490	-547	-565	-582	-590	-624	-626	-629	-630
Row 4 less: Interest Expense	-564	-1,248	-1,386	-1,403	-1,402	-1,389	-1,361	-1,327	-1,297	-1,265
Row 5 less: CCA	-1,514	-3,346	-3,600	-3,458	-3,314	-3,168	-3,006	-2,842	-2,765	-2,672
Row 7 Taxable Income before Tax Credits	-2,375	-3,478	-2,627	-1,422	-547	-25	361	662	865	818
Row 8										
Row 9 Tax Credits Applied	0	0	0	0	0	0	-361	-662	-865	-818
Row 10 Taxable Income	0	0	0	0	0	0	0	0	0	0
Row 11										
Row 12 Income Tax	0	0	0	0	0	0	0	0	0	0

Tax Credit
(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1 Balance c/f	0	2,375	5,853	8,480	9,902	10,448	10,474	10,113	9,451	8,586
Row 2 Additions	2,375	3,478	2,627	1,422	547	25	0	0	0	0
Row 3 Tax Credit Applied	0	0	0	0	0	0	-361	-662	-865	-818
Row 4 Balance b/f	2,375	5,853	8,480	9,902	10,448	10,474	10,113	9,451	8,586	7,768

Property Taxes
(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Row 1 Projected Assessment Base	21,691	33,716	37,844	39,202	40,387	41,005	43,356	43,541	43,722	43,815
Row 2 Projected Property Tax Expense	331	490	547	565	582	590	624	626	629	630

Property Tax Rates
(Thousands of Dollars)

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6
Description	Kincardine	Arran-	Huron-	Brockton	West	Chatswort
Row 1						
Row 2 Municipal Rate	0.66%	0.75%	0.61%	0.79%	0.56%	0.60%
Row 3 County Rate	0.39%	0.39%	0.39%	0.39%	0.33%	0.33%
Row 4 School Rate	0.98%	0.98%	0.98%	0.98%	1.09%	1.09%
Row 5 Sum	2.03%	2.12%	1.98%	2.16%	1.97%	2.02%



EPCOR UTILITIES INC.

Procurement Policy

January 01, 2019

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1.0 DEFINITIONS

- 1.1 **Accounts Payable (AP)** means the EPCOR Utilities Inc. group responsible for processing of all invoices and payments to suppliers for services or goods rendered.
- 1.2 **Blanket Purchase Agreement** Blanket Purchase Agreement is an agreement with suppliers for specific goods or services where pricing and quality have been identified for a pre-determined period of time. These agreements can be accessed by the BU through the self-serve process where they can order the release of these goods or services with the creation of a Blanket Release.
- 1.3 **Blanket Release** means the Oracle generated purchase document.
- 1.4 **Budgeted Foreign Exchange Rate** means the exchange rate to convert foreign currencies to Canadian dollars as approved by the Board in the annual budget.
- 1.5 **Business Unit or BU** means a business unit of EPCOR.
- 1.6 **CESAP** means the Contract Execution and Spending Authority Policy of EPCOR.
- 1.7 **Commit** means the commitment of EPCOR to a third party for the procurement of goods and/or services.
- 1.8 **Competitive Bidding** is a procurement method, in which bids are invited from contractors, suppliers and/or vendors for goods and/or services to certain scope, specifications and terms and conditions. The principle goal of a competitive bid is to use competition to capture best value while mitigating risk to EPCOR.
- 1.9 **Contract(s)** means any written document that legally binds EPCOR, including but not limited to agreements, amending agreements, change orders, letter agreements, letters of intent and/or memorandums of understanding, purchase orders, executed or to be executed by one or more Employees on behalf of EPCOR evidencing that EPCOR Utilities Inc., or a specific Legal Entity, and one or more third parties have exchanged legally binding rights, duties, obligations or promises for consideration.
- 1.10 **Draw Down Purchase Order** means a type of Purchase Order in Oracle which utilizes a \$1 unit price; may be used in the situations described in Section 5.1.1 (iv) and (v).
- 1.11 **Emergency** means a situation requiring immediate action by an Employee for the protection of the environment, health and safety of Employees and/or the public or to prevent serious material harm or damage to EPCOR assets or prevent significant interruptions in the provision of services where the appropriate authorizations cannot be obtained before the immediate action must be taken.
- 1.12 **Employee(s)** means all employees and Corporate Officers of EPCOR.
- 1.13 **EPCOR** means any one or all of EPCOR Utilities Inc. and its direct and indirect Canadian subsidiaries, as applicable.
- 1.14 **EUI** means EPCOR Utilities Inc.
- 1.15 **Legal** means EUI's Legal Department and external lawyers when directed by EUI's Legal Department.
- 1.16 **Legal Entity** means the Canadian incorporated direct and indirect subsidiaries of EPCOR.

- 1.17 **Oracle** means EPCOR's Enterprise Resource Planning (ERP) system where the Purchasing module resides.
- 1.18 **Master Contract** means any Contract other than an International Swaps and Derivatives Association agreement wherein there is no set commitment or obligation on behalf of EPCOR to incur or procure a good or service from a third party but a causal relationship is established in preparation for and facilitation of same.
- 1.19 **Policy** means this Procurement Policy, as amended from time to time.
- 1.20 **Procurement Approval** means the approval of a purchase after the approval of a requisition by the appropriate BU.
- 1.21 **Procurement Approval Group** means a Procurement Employee's Commit limit as set out in Schedule "A" hereto.
- 1.22 **Purchase Order** means written authorization for a supplier to provide a good and/or service at a specified price, which becomes a legally binding contract once issued to the supplier.
- 1.23 **Procurement** means the Procurement organization operating within each EPCOR line of business responsible for the acquisition of goods, services, construction and facilities on behalf of the Business Units. This responsibility includes maintaining and administering the Procurement Policy, developing sourcing strategies, providing expert advice on procurement and contracting best practices, managing and overseeing purchasing activities, negotiation of contracts, and supplier relationship management.
- 1.24 **Regulator** means a third party organization or agreement that places obligations on EPCOR impacting EPCOR's procurement sourcing methods. Examples of such organizations or agreements include but are not limited to municipalities, Governments, Alberta's Electric System Operator (AESO), agreements with municipalities, trade agreements.
- 1.25 **Self-Serve** means the process for the creation of Blanket Releases against Blanket Purchase Agreements.
- 1.26 **SVP** means Senior Vice President.
- 1.27 **Standard Form Contracts** means those contracts set out in Appendix "A" of EPCOR's Legal Contract Review Procedure located on Legal's intranet site.
- 1.28 **Value Added Taxes** means all Goods and Services Tax, Provincial sales taxes, any State or Federal taxes, import/export taxes or duties.

2.0 INTRODUCTION AND PURPOSE

- 2.1 This Policy applies to all Employees of EPCOR.
- 2.2 The purpose of the Policy is to set out clear lines of accountability and control over the procurement of goods and/or services for EPCOR.
- 2.3 All amounts set out in this Policy are maximum limits, expressed in Canadian dollars (or the equivalent in any other currency or currencies at the applicable Budgeted Foreign Exchange Rate approved in the annual budget) exclusive of all Value Added Taxes.

3.0 GUIDING PRINCIPLES

- 3.1 EPCOR has adopted the following set of guiding principles that assist in the overall understanding of the procurement of goods and/or services. These guiding principles also ensure that high standards of practice are maintained.
 - 3.1.1 EPCOR will maintain high legal, ethical, and professional standards in the procurement of goods and/or services.
 - 3.1.2 Whenever possible, EPCOR will use fair and open competitive procurement processes; and
 - 3.1.3 EPCOR will ensure that no one supplier shall be intentionally given an advantage over another in the procurement process. All suppliers shall be given the same opportunity to participate in EPCOR's procurement process to the extent they can provide the goods and/or services to the required specifications and/or requirements.

4.0 APPLICATION

- 4.1 Applicability
 - 4.1.1 This Policy supersedes all existing Procurement Policies related to the procurement of goods and/or services at EPCOR.
 - 4.1.2 This Policy applies to all Employees of EPCOR and to all procurement activity carried out by EPCOR, except as provided in 4.1.3.
 - 4.1.3 This Policy does not apply to intercompany transactions between EUI and its subsidiaries.

5.0 ORDERING METHODS

- 5.1 EPCOR uses the following ordering methods to procure goods and/or services: Purchase Orders, Procurement Cards, Self-Serve (Blanket Releases), Supply Arrangements and non-Purchase Order invoices.
 - 5.1.1 Purchase Orders

A Purchase Order is EPCOR's commitment to a supplier to procure goods and/or services and is a legally binding contract. Purchase Orders are also used by EPCOR to match orders, for receipt of goods and invoices in order to ensure that we pay only for the quantity of goods and services that we ordered and received and at the agreed upon amounts specified in the Purchase Order. The following controls must be adhered to when utilizing a Purchase Order:

 - i. A purchase requisition approved in accordance with CESAP is required to create a Purchase Order. The purchase requisition is the means to obtain approval of the expenditure whereas the Purchase Order is the means to commit EPCOR to the purchase of goods and/or services.
 - ii. Purchase Orders are to be issued for an annual period only.
 - iii. Renewals against multi-year Contracts will be done on a new PO each year unless the PO is for a project specific period where it may cover more than one fiscal year.

- iv. If unit prices are known, a Drawdown Purchase Order may only be utilized for Purchase Orders that are for: (A) less than \$400,000, or (B) \$400,000 or greater where the relevant business unit or shared service Senior Vice-President has approved use of a Drawdown Purchase Order as evidenced by a signed exception form. Purchase Orders must not be split in order to bring values below the \$400,000 threshold referred to in this paragraph.
- v. If unit prices are known, for circumstances referred to in paragraph (iv)(A) above, use of a Purchase Order using unit prices and estimated quantities is strongly encouraged instead of a Drawdown Purchase Order unless the purchase involves one or more of the following:
 - annual supply of the same or similar services from the same supplier;
 - frequent, but not regularly scheduled, multiple deliveries to the same locations;
 - future delivery schedule is unknown;
 - precise volumes or quantities are not known until delivery, but there is a standard known price list and/or there is an approved Master Contract;
 - delivery, packing charges, or supplier discounts and/or fees regularly affect final prices.

5.1.2 Procurement Card (P-Card)

Low risk, low dollar value items for EPCOR can be made by Employees without involving Procurement pursuant to EPCOR's Procurement Card Policy.

5.1.3 Self-Serve (Blanket Releases)

Self-Serve is the generation of Blanket Releases against approved Blanket Purchase Agreements. This process is completed by Business Unit or supply chain employees and the request does not go through the Procurement organization. Oracle auto generates the Purchase Order (against an agreement that is already in place) and dispatches the order to the supplier.

Approval of the Blanket Release is as per the spend approval limits identified in the CESAP policy.

5.1.4 Supply Arrangements

Supply Arrangements are Blanket Agreements or Master Agreements in place at EPCOR for specific goods and/or services.

Employees are to purchase from Supply Arrangements to the greatest extent practical.

5.1.5 Non-Purchase Order Invoice

Refer to the Non-purchase Order Invoice Policy on Finance's intranet site for details on when it is appropriate to use Non-Purchase Order invoices.

6.0 NON-COMPETITIVE PROCUREMENTS

- 6.1 In response to an Emergency, a Business Unit may procure goods and/or services, exercising prudence and judgment in the quantity, scope and duration of the goods and/or services procured. In Emergency situations, a competitive procurement process is not required.

All incidents where an Employee has acquired goods and/or services due to an Emergency are to be:

- Documented. Documentation is to include order date, total cost, supplier name, product and/or services description and emergency particulars, and
- Communicated as soon as practicable after the Emergency to the Employee's supervisor, the Business Unit's Senior Manager responsible for Procurement, Business Unit controller and the Corporate Controller.

- 6.2 For non-competitive procurements \$75,000.00 or greater, the BU is to provide defensible justification (in writing) to Procurement, to support the procurement. The non-competitive procurement shall also be approved by the appropriate Approval Group (as identified in Schedule A of CESAP) that is one level higher than the Approval Group authorized to approve the Requisition.

7.0 APPROVALS AND LIMITS

- 7.1 Authority to Commit EPCOR to the procurement of goods and/or services is set out herein. Such authority however, may be subject to further limitations from time to time, to meet special business purposes, or other circumstances.
- 7.2 All Employees procuring goods and/or services in accordance with the limits set out herein are only authorized to execute or approve on behalf of the EPCOR Entity of which they are:
- i) an employee of the EPCOR entity; or
 - ii) on whose behalf the Employee is providing services of an ongoing nature.
- 7.3 Non-employees, independent contractors or external third parties (herein "Non-employees") engaged by EPCOR shall have no authority to procure goods and/or services on behalf of EPCOR. Approval of procurements by Non-Employees on behalf of EPCOR is only permitted if previously approved in writing by the SVP of the Business Unit responsible for Procurement.
- 7.4 Transaction limits in Schedule "A" can be increased based on an identified business need and approval by the Director of the specific Employee.
- 7.5 Individual Procurement Employee approval limits are based on EPCOR's business needs.
- 7.6 The Procurement Approval Limits set out in Schedule "A", apply cumulatively per Purchase Order including amendments and change requests for each Approval Group and reflect the appropriate level of oversight required to mitigate risk.

8.0 ROLES AND RESPONSIBILITIES

These roles and responsibilities are designed to facilitate the ongoing administration, maintenance and monitoring of this Policy. The positions designated below are responsible and accountable for ensuring that the specified obligations are met.

8.1 General Counsel

General Counsel is responsible for:

- Ownership of the Policy;
- Approving the Policy and all amendments thereto; and
- Approving any exceptions to the Policy, including the Approval Groups (Schedule "A") as recommended by Senior Managers responsible for Procurement;
- Ensuring that the Policy is accessible to all Employees;
- Ruling on conflicts, matters of interpretation and exceptions in a timely manner as they arise;
- Communication of significant or material Policy changes to BU Senior Vice Presidents, CEO and the Board;
- Establishing and managing processes and controls to effectively administer and enforce the Policy so as to mitigate acts of non-compliance;
- Addressing audit issues and concerns related to the Policy in a timely manner;
- Providing clarification on processes associated with the Policy as they arise;
- Reviewing with the BU Senior Vice Presidents the appropriateness of Policy approval limits, and approving exceptions to the Policy for Approval Groups; and
- Reporting significant acts of non-compliance or other significant matters related to this Policy to the Corporate Controller, BU SVP or the CFO.

8.2 Business Unit (BU) Senior Vice Presidents

The BU Senior Vice Presidents are responsible for:

- Ensuring their respective BUs comply with this Policy;
- Communication of Policy changes to Employees;
- Seeking the advice of the General Counsel on issues related to compliance and interpretation of the Policy; and
- Reporting acts of non-compliance with this Policy to General Counsel, when they arise, in a timely manner.

8.3 Procurement

Each Business Unit's designated Procurement organization includes individuals that participate in procurement activities, each having distinct roles and responsibilities. The following outlines these participants and their responsibilities:

8.3.1 BU Senior Manager responsible for Procurement

The BU Senior Manager responsible for Procurement (Procurement Senior Manager) is responsible for:

- Ensuring the Procurement functional area complies with this Policy;
- Communication of Policy changes to Employees;
- Seeking the advice of General Counsel on issues related to compliance and interpretation of the Policy;
- Reporting acts of non-compliance with this Policy in a timely manner to General Counsel when they arise;
- Recommending exceptions to Procurement Approval Groups to General Counsel;
- Reporting Employee spending limit exceptions during an Emergency to General Counsel;

- Ensuring the procurement of all goods and/or services required by EPCOR are completed in accordance with generally accepted procurement practices and obligations set out by a Regulator;
- Assisting in Employee and Business Unit education regarding this Policy's application; and
- With the assistance of General Counsel, making best efforts to resolve conflicts arising out of the Policy, addressing acts of non-compliance.

8.3.2 Procurement Managers

Procurement Managers are responsible for:

- Administering the Policy on a day to day basis;
- Reviewing and approving procurement documentation within prescribed limits; and
- Ensuring that procurements are completed in accordance with generally accepted procurement practices and obligations set out by a Regulator;
- Encouraging Business Unit use of Supply Arrangements;
- Assisting in Business Unit education regarding this Policy's application;
- Reporting acts of non-compliance or other issues as appropriate to the Procurement Senior Manager, in a timely manner.

8.3.3 Procurement Employees:

Procurement Employees are responsible for:

- Compliance with the Policy;
- Understanding the requirements of this Policy and being familiar with the applicability of other EPCOR policies and procedures in the performance of their duties under this Policy;
- Completing procurements of goods and/or services in accordance with generally accepted procurement practices and obligations set out by a Regulator;
- Creating and approving Purchase Orders within prescribed limits;
- Where practical, utilizing Supply Arrangement for the purchase of goods and/or services;
- Encouraging Business Unit use of Supply Arrangements;
- Assisting in Business Unit education regarding this Policy's application;
- Obtaining guidance from their Manager on all material matters related to the Policy; and
- Reporting acts of non-compliance with the Policy to their Manager in a timely manner.

8.4 Employees

Each Employee is responsible for:

- Compliance with the Policy;
- Understanding the requirements of the Policy and being familiar with the applicability of other EPCOR policies and procedures in the performance of their duties under this Policy;
- Obtaining guidance from the appropriate BU Procurement Senior Manager on all matters related to the Policy; and
- Reporting acts of non-compliance with the Policy to their Manager in a timely manner.

8.5 Risk, Assurance and Advisory Services

Risk, Assurance and Advisory Services is responsible for:

- Conducting periodic audits and reviews with respect to the execution of procurements under this Policy;
- Confirming that actual operating practices are in compliance with this Policy and any applicable procedures;
- Assessing the processes, procedures, limits and controls over the administration, monitoring and application of limit controls; and
- Reporting, as appropriate, acts of non-compliance or other deficiencies observed during the audit process to General Counsel.

9.0 COMPLIANCE

- 9.1 It is a violation of this Policy to split a purchase into small parcels in order to circumvent the requirements of this Policy or established controls.
- 9.2 All exceptions, breaches, suggested changes to or conflicts with the authorities set out under this Policy are to be reported to General Counsel as applicable, for further action.
- 9.3 **NON-COMPLIANCE WITH THE TERMS OF THIS POLICY IS SUBJECT TO DISCIPLINARY ACTION, REMOVAL OF AUTHORITY AND/OR TERMINATION OF EMPLOYMENT.**

10.0 DOCUMENT REVISION HISTORY

Version Number	Date	Author	Change Description
1.0	May 27, 2011	Bryan Hannah	Created new policy
2.0	March 30, 2015	Terri Gentile	Revisions to policy to reflect line of business restructuring, CSOX engagement recommendations; and 3 year maintenance review
3.0	January 1, 2019	Asif Kazani	Revisions to reflect Draw Down Purchase Orders

Generic Identifying Information

Policy Name	EPCOR Procurement Policy
Contact Person	Asif Kazani, Senior Manager, Corporate Procurement and Facilities

Milestone dates

Effective Date	January 01, 2019
Next Review Date	June 30, 2019

Responsibility and Distribution

Executive Sponsor	Jennifer Addison, Senior Vice President, Legal and Corporate Secretary
Senior Manager Reviewers	<ul style="list-style-type: none"> • Asif Kazani, Senior Manager, Corporate Procurement and Facilities, EUI • Ron Edwards, Senior Manager, Procurement Fleet and Facilities, EPCOR Distribution and Transmission Inc. • Eric Wood, Senior Manager, Supply Chain & Facilities, Drainage Services (EWSI) • Heather Piano, Senior Manager, Supply Chain, EPCOR Water Services Inc. • Brett Wiles, Senior Manager, Engineering & Supply Chain, EPCOR Technologies Inc.
Owner	Asif Kazani, Senior Manager, Corporate Procurement & Facilities
Stakeholders	Business Unit Procurement organizations
Audience	This policy applies to all Employees of EPCOR

SCHEDULE "A" – PROCUREMENT APPROVAL LIMITS

SCHEDULE "A"							
Procurement Approval Limits							
Transaction	Maximum Purchase Order Value Authorities (M=Millions)						
	Approval Group 6	Approval Group 5	Approval Group 4	Approval Group 3	Approval Group 2	Approval Group 1	Approval Group 0
	Director	Procurement Senior Manager	Procurement Manager	Contract Analyst	Procurement Associate	Purchasing Assistant	Non Procurement Employee authorizing Blanket Releases
Purchase Order approval limit authority	Unlimited	up to \$1M	up to \$500K	up to \$250K	up to \$125K	up to \$75K	up to \$10K

EPCOR Utilities Inc. Finance and Accounting Policy and Procedures			
Topic	Depreciation and Amortization	Number	FA-007
Category	Property, Plant and Equipment, Intangible Assets	Revision Number	2
Issued by	Accounting Standards Committee	Issued and Effective	Dec 31, 2006
Approved by	Corporate Controller	Revised	Oct 9, 2011

1. Purpose and Scope

- 1.1 This depreciation policy functions as a guide in the calculation of depreciation and amortization expense for property, plant and equipment (PP&E) and intangible assets for the purpose of producing general purpose financial statements. The intent is to ensure that PPE and intangible assets are properly depreciated in accordance with International Financial Reporting Standards (IFRS).
- 1.2 This policy refers to depreciation of rate-regulated and non rate-regulated capital assets. All PP&E and intangible assets must be depreciated in a rational and systematic manner over their expected useful economic lives in compliance with IFRS.

2. Definitions and Background

- 2.1 **Asset** – resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity.
- 2.2 **PP&E**– tangible items that:
 - (a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
 - (b) are expected to be used during more than one period.
- 2.3 **Intangible asset** - identifiable non-monetary asset without physical substance.
- 2.4 **Cost** – the amount of cash or cash equivalent paid or the fair value of other consideration given to construct or acquire an asset.

The cost of an item of property, plant and equipment comprises:

- (a) its purchase price, including import duties and non-refundable purchase taxes, after deducting trade discounts and rebates;
- (b) any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management; and
- (c) the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located, the obligation for which an entity incurs, either when the item is acquired or, as a consequence of having used the item during a particular period for purposes other than to produce inventories during that period.

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- 2.5 **Capital work-in-progress (CWIP)** – an account that includes all costs of capital projects that are incomplete or not yet in service. Capitalized interest, if any, is added in CWIP, as directed in the Capitalization Policy.
- 2.6 **Depreciation** – the systematic allocation of the depreciable amount of an asset over its useful life.
- 2.7 **Depreciable amount** - the cost of an asset or other amount substituted for cost, less its residual value.
- 2.8 **Residual value** – the estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.
- 2.9 **Straight-line Depreciation Method** – A depreciation method that allocates the depreciable amount of an asset over its useful life to reflect a constant annual charge to income.
- 2.10 **Useful life** – is:
- the period over which an asset is expected to be available for use by an entity; or
 - the number of production or similar units expected to be obtained from the asset by an entity.

The useful life is defined in terms of the asset's expected utility to the entity and is governed by physical and economic factors. For example, the end of an asset's physical life will generally be reached when the asset is no longer capable of performing its intended function because of physical wear. The end of the economic life of an asset is generally reached when a replacement asset is more economical to use than the current asset in place.

3. Depreciation Method

- 3.1 The depreciation method used shall reflect the pattern in which the asset's future economic benefits are expected to be consumed. EPCOR currently uses the straight-line method for all capital assets with a finite useful life.
- 3.2 Under the straight-line depreciation method, the depreciation rate is based on the development and application of a single depreciation rate. Straight-line depreciation results in a constant charge over the useful life if the asset's residual value does not change. This should be used where assets are used to deliver a constant level of service to customers over time.
- 3.3 The depreciation method used should be reviewed on an annual basis. If a business unit determines that there is a more appropriate method that better reflects the pattern in which the asset's future economic benefits are expected to be consumed,

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(e.g. the diminishing balance method or the units of production), then the Business Unit Controller should propose such method to Corporate Finance for approval. Any change in depreciation method should be adopted on a prospective basis.

- 3.4 No depreciation is calculated on assets in CWIP or land.

4. Componentization

- 4.1. Each part of an item of PP&E with a cost that is significant in relation to the total cost of the item shall be a separate component of the item of PP&E and depreciated separately. Significant components that have the same useful life and depreciation method may be grouped together in determining the depreciation charge.
- 4.2. The parts of the item of PP&E that are not considered individually significant should be grouped together as a single component and depreciated using a depreciation rate that reflects the approximate consumption pattern of the group of assets.

5. Depreciation Rates & Useful Lives

- 5.1 All items of PP&E and intangible assets must be depreciated in a rational and systematic manner over their expected useful lives in order to be in compliance with IFRS.
- 5.2. Under the straightline depreciation method, the depreciation rate to be applied is computed by dividing 1 by the average useful life of the asset account.
- 5.3. The useful life of an item of PP&E or intangible asset is normally governed by its physical use. However, other factors, such as technical or commercial obsolescence or legal restrictions may also affect the consumption of the asset, and so the estimate of useful life should be the shortest of its physical, technological, commercial and legal life.
- 5.4. Depreciation of an asset begins when it is available for use (i.e. when it is in the location and condition necessary for it to be capable of operating in the manner intended by management).
- 5.4.1. The use of the half-year rule is acceptable for assets that are being added which form part of larger asset or system.
- 5.4.2. However, where the asset addition is a net new asset or an enhancement to an existing asset and this asset is significant, the capital asset groups should use professional judgement to determine whether using the half-year rule will result in a material difference in depreciation recorded for the asset compared

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to the amount of depreciation that would be recorded if the actual in-service date was used. If the difference would be material, then the half-year rule should not be used and depreciation should begin at the actual in-service date.

- 5.5. Depreciation of an asset ceases at the earlier of the date that the asset is classified as held for sale in accordance with IFRS 5 – Non-current Assets Held for Sale and Discontinued Operations and the date the asset is derecognized.
- 5.6. The useful life and residual value, of an item of property, plant and equipment or intangible asset should be reviewed at each financial year-end or earlier if a significant event occurs prior to the next review. A significant event would include:
- a change in the extent or manner in which the asset is used;
 - removal of the asset from service for an extended period of time;
 - physical damage;
 - significant technological developments; or
 - a change in the law, environment, or consumer styles and tastes affecting the period of time over which the asset can be used.

6. Asset Disposals

- 6.1. A disposal occurs when an item of property, plant and equipment or intangible asset is no longer used by an entity. A disposal can be due to a sale to a third party or the expiration of the useful life of an asset. After an asset disposal occurs the entity no longer has use of the asset.
- 6.2. Under the straight-line method, when assets are disposed of, the gain or loss is realized in income and the original cost and accumulated depreciation are adjusted to zero. This applies to dispositions at any point in the life of the asset as well as dispositions at the end of the life of the asset.
- 6.3. Where a replacement part has been capitalized, the item that is being replaced must be derecognized, regardless of whether it has been identified as a separate component.
- 6.4. Where compensation is received for an asset that has been disposed, the compensation is recognized in income once the compensation becomes receivable. It should not be offset against the cost of any replacement asset.

7. Residual Value

EPCOR Utilities Inc. Finance and Accounting Policy and Procedures			
Topic	Depreciation and Amortization	Number	FA-007
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Issued by	Accounting Standards Committee	Issued and Effective	Dec 31, 2006
Approved by	Corporate Controller	Revised	Oct 9, 2011

- 7.1 If a residual value is estimated for an asset subject to the straight-line method, the residual amount is recovered over the life of the asset as a reduction of the depreciation charge.
- 7.2 The residual value of an asset should be reviewed together with the useful life in accordance with paragraph 5.6 above. Any change to depreciation resulting from a change in the estimated residual value of an asset should be adjusted on a prospective basis.

8. References

IAS 16 – Property, Plant and Equipment
IAS 38 – Intangible Assets
Conceptual Framework for Financial Reporting

9. Related Policies, Procedures and Guidelines

FA-004 - Capitalization Policy

CERTIFICATION

The undersigned, being EPCOR Ontario Utilities Inc.'s Senior Vice-President, Commercial Services, Steve Stanley hereby certifies for and on behalf of EPCOR Natural Gas Limited Partnership (ENGLP), as general partner of ENGLP, that ENGLP's costs, including the costs set out in ENGLP's application filed April 11, 2019, are in compliance with the Ontario Energy Board's *Affiliate Relationships Code for Gas Utilities*.

DATED this 11 day of April, 2019.

[original signed by]

Stephen Stanley

Senior Vice-President, Commercial Services
EPCOR Ontario Utilities Inc.

SERVICE LEVEL AGREEMENT

THIS AGREEMENT made effective as of **ENTER EFFECTIVE DATE** (the “**Effective Date**”).

BETWEEN:

, a corporation formed under the laws of the Province of Alberta,
(hereinafter referred to as the “**Service Provider**” or “39T”)

- and -

EPCOR Natural Gas Limited Partnership, a corporation formed
under the laws of the Province of Ontario (hereinafter referred to
as the “**Service Receiver**”)

WHEREAS the Service Receiver has requested the Service Provider to provide, and the Service Provider is willing to provide the Contract Services (as hereinafter defined) to the Service Receiver upon the terms and conditions set forth in this Agreement.

AND WHEREAS the Service Provider, the Service Receiver, or both, have created a compliance plan to describe the systems, policies and mechanisms that such party intends to use to ensure that all of its officers, employees, agents and contractors comply with the *Affiliate Relationship Code for Gas Utilities* as established by the Ontario Energy Board as it may be amended from time to time.

AND WHEREAS such compliance plan is intended to concurrently comply with the requirements of the *Affiliate Relationship Code for Gas Utilities* which require that a services agreement be executed between the Parties to support the regulatory process.

NOW THEREFORE THIS AGREEMENT EVIDENCES that in consideration of the mutual covenants and agreements contained in this Agreement and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties do hereby covenant and agree as follows:

ARTICLE 1
INTERPRETATION

1.1 Definitions

In this Agreement, including all recitals, schedules and attachments hereto, unless otherwise indicated or the context otherwise requires, the following words and expressions shall have the following meanings:

“**Act**” means the *Ontario Energy Board Act, 1998*,

“**Affiliate**” means an affiliate as defined in section 3 of the Act;

“**Agreement**” means this agreement and all schedules and addenda attached hereto;

“**ARC**” means the *Affiliate Relationships Code for Gas Utilities*

“**Board**” means the Ontario Energy Board

“**Board of Arbitrators**” shall have the meaning ascribed to that term in Section 8.3;

“**Business Day**” means any day except a Saturday, Sunday or statutory holiday in the Province of Alberta or Ontario;

“**Canadian Prime Rate**” means the rate of interest expressed as a rate per annum which the Royal Bank of Canada establishes from time to time at its main office in Edmonton, Alberta as its posted prime rate;

“**Conduct Requirements**” means the requirements outlined in the ARC, and the requirements contained in the associated compliance plan;

“**Contract Services**” means, collectively, the services more particularly described in Schedule “A” to this Agreement;

“**Force Majeure**” shall have the meaning ascribed to that term in Section 7.2;

“**Indemnified Party**” shall have the meaning ascribed to that term in Section 4.1;

“**Indemnifying Party**” shall have the meaning ascribed to that term in Section 4.1;

“**Information**” shall have the meaning ascribed to that term in Section 6.1;

“**Party**” or “**Parties**” means a Party or Parties to this Agreement; and

“**Person**” means an individual, corporation, partnership, joint venture, association, trust or unincorporated organization.

“**Term**” shall have the meaning ascribed to that term in Section 5.1.

1.2 Number and Gender

Words used herein importing the singular number only shall include the plural and vice versa and words importing the use of any gender shall include all genders.

1.3 References

References to the words “Article” and “Section” herein shall, unless the contrary be expressly stated, refer to an Article or Section of this Agreement, and references to “hereof”, “herein”, “hereby”, “hereunder” and “this Agreement” refer to the whole of this Agreement including the Schedules and Addendum attached hereto.

1.4 Amendments to Agreements and Law

References herein to any agreement or document shall be deemed to be a reference to such agreement or document as varied, amended, modified, supplemented, or replaced from time to time. Any specific reference herein to any enactment of law shall be deemed to be such enactment as the same may be amended or re-enacted from time to time and every statute that may be substituted therefore and, in any such event reference to such enactment shall be read as referring to such enactment as so amended, re-enacted or the statute substituted therefore, as the case may be.

1.5 Headings

The division of this Agreement into Articles, Sections and other subdivisions, the provision of a table of contents and the insertion of headings are for convenience of reference only and are not to be used in construing or interpreting this Agreement or any portion thereof.

1.6 Governing Law

This Agreement shall be governed by and interpreted in accordance with the laws of the Province of Alberta and the federal laws of Canada applicable therein.

1.7 Severability

Each provision of this Agreement is intended to be severable and, if any provision is determined by a court of competent jurisdiction to be illegal or invalid or unenforceable for any reason whatsoever, such provision shall be severed from this Agreement and will not affect the legality or validity or enforceability of the remainder of this Agreement or any other provision hereof.

1.8 Next Business Day

In the event that any date on which any action is required to be taken hereunder by any of the Parties hereto is not a Business Day, such action shall be required to be taken on the next succeeding day which is a Business Day.

1.9 Entire Agreement

This Agreement including the annexed Schedules constitutes the entire agreement among the Parties relating to the matters set forth herein and in the Schedules and shall supersede and cancel any and all pre-existing agreements and understandings among the Parties relating thereto. Any and all prior contemporaneous negotiations, prior memoranda of understanding or position, and preliminary drafts and prior versions of this Agreement or the Schedules, whether signed or unsigned, shall not be used to construe the terms or affect the validity or interpretation of this Agreement or the Schedules.

1.10 Schedules

The following Schedules are attached to and form part of this Agreement:

- Schedule "A" – Contract Services for Services Rendered **ENTER BEGIN DATE**
– **ENTER END DATE**
- Schedule "B" – Basis of Payment for Contract Services for Services Rendered
ENTER BEGIN DATE – **ENTER END DATE**

If there is any conflict between the body of this Agreement and the attached Schedules, the body of this Agreement shall prevail.

ARTICLE 2 CONTRACT SERVICES

2.1 Contract Services

Commencing on the Effective Date, the Service Provider shall provide to the Service Receiver the Contract Services more particularly described in Schedule "A" in accordance with this Agreement.

2.2 Warranty

The Service Provider represents and warrants that it is capable of providing the Contract Services as required by this Agreement. The Service Provider further represents and warrants that the Contract Services provided by the Service Provider pursuant to this Agreement will be performed with reasonable skill, care, and diligence and in accordance with generally accepted, utility operating standards and practices.

2.3 Laws and Regulation

The Service Provider shall comply with all laws and regulations governing the Service Receiver and the Service Provider which are applicable to the performance of the Contract Services at the place or places at which the Contract Services are performed, including, but not limited to the Conduct Requirements. The Service Provider confirms that it has been provided with full disclosure of the Service Provider's obligations under the ARC

2.4 Policies

The Service Provider shall comply with all applicable policies and procedures established by the Service Receiver from time to time including, without limitation, the Service Receiver's compliance plan, Privacy Policy, Alcohol and Drug Policy, Ethics Policy and any health, safety and security policies (the "**Policies and Procedures**"). The Service Provider confirms that it has been provided with full disclosure of all the Service Receiver's applicable Policies and Procedures.

2.5 Services

The parties acknowledge that this Agreement shall be subject to any rule application to the Service Provider made by the Ontario Energy Board pursuant to the *Ontario Energy Board Act*, S.O. 1998, c. 15, Sched. B., s. 44, including without limitation, the *Affiliate Relationships Code for Gas Utilities* (the "Code"), as amended from time to time. Specifically, without limited the generality of the foregoing, the Service Receiver agrees to comply promptly with all requests either made or authorized by the Ontario Energy Board for information with respect to the services provided pursuant to this Agreement. This Agreement shall also be subject to any valid, applicable federal, provincial or other governmental regulatory body or authority having jurisdiction over a party or the subject matter of this Agreement.

ARTICLE 3 PAYMENT

3.1 Compensation

As full consideration for performance of the Contract Services, the Service Receiver shall pay the Service Provider the compensation ("**Compensation**") provided in Schedule "B" at the times and in the manner provided in Section 3.2. All fees payable to the Service Provider are

exclusive of the federal goods and services tax and, if applicable, provincial sales taxes and harmonized sales tax but are inclusive of all other taxes, customs, duties, excise taxes and non-resident withholding taxes (if applicable).

3.2 Invoicing and Payment

The Service Provider shall invoice the Service Receiver each month, no later than the thirtieth (30th) calendar day of the following month. The appropriate manager within the Service Receiver shall review, and if appropriate, approve and forward the invoice to Accounts Payable within thirty (30) days of receipt. Accounts payable shall enter the invoice into Oracle and each invoice shall be paid on the next available payment run.

3.3 Method of Payment

Each invoice shall be paid in full in Canadian funds by Electronic Funds Transfer (EFT) from the Service Receiver to the Service provider. Direct charges shall be handled in accordance with the Service Receiver's standard accounting policies and practices.

3.4 Invoice or Charge Errors

If an error is found in any invoice or record of direct charge, the Party identifying the error shall immediately advise the other Party. Any adjustment necessary to correct such error shall be made as soon as practical or, in the case of an error in a direct charge, in accordance with the Service Receiver's standard accounting policies and practices.

3.5 Records

The Service Provider shall maintain complete and accurate books, records, and accounts of and supporting documents for all work performed and items billed for Contract Services. The Service Provider shall ensure that the books, records, accounts, and documents are not destroyed without the Service Receiver's written authorization for a period of seven (7) years after the termination or expiration of this Agreement. The Service Provider shall, on demand, make available to the Service Receiver or its respective duly authorized representatives for inspection, reproduction, and audit or any other reasonable purposes, every such book, record, account, and document.

3.6 Invoice or Charge Disputes

In the event that the Manager within the Service Receiver disputes in good faith any part of a monthly invoice, such dispute shall be resolved, in accordance with the provisions of Article 8. If, after following the provisions of Article 8, it is determined that the invoice ought to be paid by the Service Receiver, the Service Receiver shall pay to the Service Provider the amount owing under the disputed invoice within fifteen (15) days of the date of such final determination.

ARTICLE 4
INDEMNITIES AND LIMITATION OF LIABILITY

4.1 Indemnity

Each Party (the “**Indemnifying Party**”) shall indemnify, defend and save harmless the other Party (the “**Indemnified Party**”) from and against any and all losses, claims, damages, liabilities or expenses (including legal expenses on a solicitor and his own client basis) suffered or incurred by the Indemnified Party as a result of, arising out of, or in connection with, the gross negligence or willful misconduct of the Indemnifying Party in the performance, purported performance, or non-performance of this Agreement, or the Indemnifying Party’s breach of this Agreement, except to the extent caused by the gross negligence or will-full misconduct of the Indemnified Party or to the extent that any such act or omission was done or omitted pursuant to the specific instructions of the Indemnified Party.

4.2 Limitation of Liability for Consequential Damages

Notwithstanding anything to the contrary contained in this Agreement, neither Party will be liable to the other Party for any damage, cost, expense, injury, loss or other liability of an indirect, special or consequential nature suffered by the other Party or claimed by any third party against the other Party which arises due to such Party's failure to perform its obligations under this Agreement or for any other reason (including negligence on its part or on the part of any person for whose acts it is responsible), howsoever and when-so-ever caused, and whether arising in contract, negligence or other tort liability, strict liability or otherwise. Without limiting the generality of the foregoing, damage, injury or loss of an indirect or consequential nature shall include loss of revenue, loss of profits, loss of production, loss of earnings, loss of contract, cost of purchased or replacement capacity and energy, cost of capital and loss of the use of any facilities or property owned, operated, leased or used by the other Party or a third party.

ARTICLE 5
TERM

5.1 Term

This Agreement shall commence on the Effective Date and shall continue in full force until **ENTER TERM END** unless otherwise agreed to by the Parties in writing.

ARTICLE 6
CONFIDENTIALITY

6.1 Confidentiality

Subject to Section 6.2, each Party shall keep confidential and shall not:

- (a) use, except for the purpose of performing its obligations or exercising its rights under this Agreement; or

- (b) disclose, except as contemplated or permitted in this Agreement;

any confidential information (including without limitation Confidential Information as defined in the ARC), trade secret or confidential financial, technical, scientific, business or other confidential or proprietary information or document of the other Party or its Affiliates received by it or any of its Affiliates in the course of, or as a result of, the relationship established between the Parties pursuant to this Agreement (herein referred to collectively as the “**Information**”).

6.2 Exceptions

A Party shall be entitled to disclose any Information to the extent:

- (a) such Information is or becomes generally known to the public other than through a breach of this Agreement or any other obligation of confidentiality between the Parties;
- (b) such Information is lawfully obtained by that Party from a third party or parties without breach of this Agreement or any other obligation of confidentiality between the Parties, as shown by documentation sufficient to establish the third party as the source of such Information and to the knowledge of the disclosing Party, without such disclosure constituting a breach by such third party or parties of an obligation of confidentiality;
- (c) such Information is comprised of technical Information and was known to the disclosing Party prior to receipt thereof from the other Party, as shown by documentation sufficient to establish such knowledge;
- (d) such Information was developed by the receiving Party independently of the disclosures made by the disclosing Party under this Agreement;
- (e) such disclosure is required in connection with any regulatory, legal or administrative proceeding; provided that where circumstances permit prior to disclosure, the disclosing Party shall notify the other Party in writing of such proposed disclosure and at the other Party's request (and expense) apply for appropriate court or other orders to preserve the confidentiality of such Information;
- (f) that such disclosure is required by law or by order of any governmental body having competent authority; provided that where the circumstances permit prior to disclosure (other than any disclosure required by applicable securities laws) the disclosing Party shall notify the other Party in writing of any such proposed disclosure and shall at the other Party's request (and expense) apply for appropriate court or other orders to preserve the confidentiality of such Information; and

- (g) the other Party shall have provided its prior written approval for such disclosure by the disclosing Party.

ARTICLE 7
FORCE MAJEURE

7.1 Relief from Obligations

Subject to Section 7.3, if by reason of Force Majeure either Party to this Agreement is unable, wholly or partially, to perform or comply with its covenants and obligations hereunder, then the Party so affected by Force Majeure shall be relieved of liability and shall suffer no prejudice for failing to perform or comply during the continuance and to the extent of the inability so caused from and after the happening of the event of Force Majeure; provided that the Party invoking Force Majeure gives to the other Party prompt notice, written or oral (but if oral, promptly confirmed in writing) of such inability and reasonably full particulars of the cause thereof. If notice is not promptly given then the Party suffering the Force Majeure shall only be relieved from such performance or compliance from and after the giving of such notice. The Party invoking Force Majeure shall use all reasonable efforts to remedy the situation and remove, so far as possible and with reasonable dispatch, the cause of its inability to perform or comply; provided, however, that settlement of strikes, lockouts and other industrial disturbances shall be wholly within the discretion of the Party involved. The Party invoking Force Majeure shall give prompt notice of the cessation of the event of Force Majeure. Nothing in this Article 7 shall relieve a Party of its obligations to make payments when due hereunder.

7.2 Force Majeure

For the purposes of this Agreement, force majeure (“**Force Majeure**”) shall mean any event beyond the reasonable control of the Party invoking Force Majeure, including therein but without restricting the generality thereof:

- (a) lightning, storms, earthquakes, landslides, floods, washouts, and other Acts of God;
- (b) fires, explosions, ruptures, breakage of or accidents to pipelines, plants, machinery, equipment or storage facilities;
- (c) strikes, lockouts, or other labour disturbances;
- (d) civil disturbances, sabotage, war, blockades, insurrections, vandalism, riots, epidemics;
- (e) acts of terrorism;
- (f) arrests and restraints by governments or governmental agencies;
- (g) the order of any court;

- (h) inability to obtain or curtailment of supplies of feed stocks or of electric power, water, fuel or other necessary utilities or services to operate any facilities or of any materials or equipment; or
- (i) inability to obtain or revocation or amendment of any permit, authorization or approval of any governmental authority required to perform or comply with any obligation under this Agreement, unless the revocation or modification of any such necessary permit, authorization or approval was caused by the violation of the terms thereof or consented to by the party holding the same.

7.3 Exclusions from Relief

No Party shall be entitled to the benefits of the provisions of this Article 7 under any of the following circumstances:

- (a) if the failure to perform or comply with any of the covenants or obligations herein imposed upon it was caused by arrest or restraint by governments or governmental agencies or the order of any court and such arrest, restraint or order was the result of a breach by the Party claiming suspension of the term of a permit, license, certificate or other authorization granted by a governmental or regulatory body having jurisdiction or of any applicable laws, regulations or orders;
- (b) if the failure to perform or comply with any of the covenants or obligations herein imposed upon it was caused by the Party invoking Force Majeure having failed to use all reasonable efforts to remedy the situation and remove, so far as possible and with reasonable dispatch, the cause of its inability to perform or comply with such covenants or obligations; or
- (c) if the failure to perform or comply with any of the covenants or obligations herein imposed upon it was caused by lack of funds or other financial cause for whatever reason.

ARTICLE 8 DISPUTE RESOLUTION

8.1 Dispute Resolution

Any matter in dispute under or relating to this Agreement, unless settled in the manner provided by Section 8.2, will be finally resolved by binding arbitration in the manner provided in Article 8.

8.2 Arbitration

All disputes arising out of or in connection with this Contract, or in respect of any legal relationship associated with or derived from this Contract, will be finally resolved by arbitration under the Arbitration Rules (the “Rules”) of the ADR Institute of Canada, Inc. (the “Institute”), with the following exceptions:

- the arbitrator, and not the Institute, will administer the arbitration on an *ad hoc* basis;
- the Seat of Arbitration (as such term is defined in the Rules) will be Edmonton, Alberta;
- the location of the arbitration will be in Edmonton, Alberta; and
- the language of the arbitration will be conducted in English.

8.3 Continuing Obligations

The supply and purchase of Contract Services and payment therefore under this Agreement shall continue during the dispute resolution proceedings contemplated by this Article 8.

ARTICLE 9 NOTICE

9.1 Notice

Any notice, consent, request or other communication to be given in connection with this Agreement shall be in writing and shall be given by:

- (a) personal delivery or registered mail, postage prepaid, to the following address for the recipient; or
- (b) facsimile transmission to the following facsimile number (confirmed by a copy delivered by personal delivery to the following address) for the recipient;

addressed to the recipient as follows:

To Service Provider:

39T

To Service Receiver:

EPCOR Natural Gas Limited Partnership

39T

or to such other address, facsimile number or individual for notice as may then have been designated by the respective Party pursuant to Section 9.2. Any communication given to a Party as aforesaid shall be deemed to have been given at the time and upon the date of the receipt at the address of such Party.

9.2 Change of Address

Any Party may, from time to time, change its address, facsimile number or individual for notice by a notice given to the other Party in accordance with Section 9.1.

ARTICLE 10 GENERAL

10.1 Time of Essence

Time shall be of the essence in this Agreement and of all of its terms.

10.2 Further Assurance

The Parties shall with reasonable diligence perform all acts, execute and deliver all documents and instruments, do all such things and provide all such reasonable assurances as may be necessary or desirable to give effect to the provisions of this Agreement.

10.3 Amendments or Waiver

This Agreement may not be amended except by written instrument signed by all of the Parties hereto. No indulgence or forbearance by any Party hereunder shall be deemed to constitute a waiver of its rights to insist on performance in full and in a timely manner of all covenants of each of the other Parties hereunder and any such waiver, in order to be binding upon a Party, must be express and in writing and signed by such Party, and then such waiver shall be effective only in the specific instance and for the purpose for which it is given. No waiver of any term, condition or covenant by any Party shall be deemed to be a waiver by such Party of its rights to require full and timely compliance with the same term, condition or covenant thereafter, or with any other term, covenant or condition of this Agreement at any time.

10.4 No Discharge on Termination

Any provision of this Agreement under which an obligation of one Party hereto has accrued but has not been discharged shall not be affected by termination of this Agreement, nor shall the Party liable to perform be discharged as a result of any such termination, nor shall termination prejudice any right of one Party against the other in respect of anything done or omitted hereunder prior to such termination or in respect of any right to damages or other remedies.

10.5 Enurement

This Agreement shall enure to the benefit of and be binding upon the Service Provider and the Service Receiver and their respective successors and permitted assigns.

10.6 Assignment

This Agreement shall be assignable by either Party as necessary in connection with any bona fide financings, financing leases, reorganizations and mergers, but this Agreement shall not otherwise be assigned by either Party without the prior written consent of the other Party, which consent each of the Parties covenants not to unreasonably withhold. Notwithstanding any permitted assignment, the assignor shall continue to remain liable for the performance of obligations under this Agreement unless such assignor is released therefrom by instrument in writing signed by the other Party.

10.7 Counterparts

This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original but all of which when taken together shall constitute one and the same agreement.

10.8 Compliance Representations

Service Provider and Service Receiver represent to each other for the purpose of the ARC that each Party intends to comply with the Conduct Requirements and that this Agreement does comply with all Conduct Requirements.

10.9 Termination on Sale

In the event of the sale of the Service Provider to an unrelated Person who is not an Affiliate, the Service Receiver may unilaterally terminate this Agreement on 90 days' notice without penalty. Any termination notice must be given to the Service Provider a minimum of 90 days prior to the closing date of the sale. The Parties must, after the receipt of the termination notice from the Service Receiver to the Service Provider, negotiate transitional costs and additional resources required during the termination period in good faith, but any failure of the Parties to come to an agreement on these aforementioned costs and resources will not affect the Compensation payable to the Service Provider for the Contract Services provided up to the termination date.

IN WITNESS WHEREOF this Agreement has been duly executed by the Parties hereto under their respective corporate seals attested by the signatures of their respective officers duly authorized in that behalf effective as of the day and year first above written.

Per:

39T
39T

EPCOR Natural Gas Limited Partnership, by its
general partner, EPCOR Ontario Utilities Inc.

Per:

39T
39T

Limited Balancing Agreement
(“Agreement”)

THIS AGREEMENT made as of _____, 201X

BETWEEN:

UNION GAS LIMITED, a company incorporated under the laws of the Province of Ontario having its head office in the City of Chatham

hereinafter referred to as "**Union**"

-and-

EPCOR NATURAL GAS LIMITED PARTNERSHIP, a limited partnership formed under the laws of the Province of Ontario, having its head office in the City of [insert name]

hereinafter referred to as "**EPCOR**"

WITNESSETH THAT:

WHEREAS, Union owns and operates a natural gas transmission system in Southwestern Ontario ("**Union's System**"), subject to the regulations of the Ontario Energy Board ("**OEB**");

WHEREAS, EPCOR intends to own, build and operate a natural gas pipeline system in the Province of Ontario ("**EPCOR's System**"), subject to the regulations of the OEB;

WHEREAS, EPCOR and Union are parties to an Interconnect Operating Agreement of even date;

WHEREAS, EPCOR and Union are parties to an M17 Transportation Contract (the "**Gas Transportation Contract**") which includes a delivery point at the interconnection between Union's System and EPCOR's System, commonly known as Dornoch (the "**Interconnection Point**");

WHEREAS, other shippers ("**Other Shippers**") may enter into temporary assignment agreements with EPCOR for transportation of gas ("**Other Shippers' Gas Transportation Contracts**") for delivery of gas at the Interconnection Point; and

WHEREAS, the Interconnection Point is subject to this Limited Balancing Agreement;

WHEREAS, Union and EPCOR will establish procedures for the nomination and confirmation of gas delivered to EPCOR at the Interconnection Point pursuant to the Gas Transportation Contract; and

WHEREAS, to achieve operating and administrative efficiencies, EPCOR agrees to be liable for all of the variances between Confirmed Nominations and Actual Quantity as defined herein, at the Interconnection Point and associated Balancing Fees,

NOW THEREFORE Union and EPCOR (collectively the "**Parties**" and each a "**Party**"), in consideration of the covenants and agreements contained herein, covenant and agree as follows:

1. Nominations and Confirmations

- a) EPCOR shall submit online nominations via *Unionline* in accordance with Union's M17 Rate Schedule (Schedule "B") as filed with the OEB. All timelines for nominations, confirmations and scheduling, herein, shall be in accordance with those established by Union and posted on Union's public website (the "**Nomination Cycles**"). Nomination deadlines are also posted on *Unionline*.
- b) EPCOR will have online access via *Unionline* to a report at each Nomination Cycle which will identify all nominations from EPCOR and from each of the Other Shippers which have been confirmed by Union (the "**Confirmed Nominations**") including a Make-Up Quantity nomination from EPCOR, as defined in section 2 e) herein, to be delivered to Union at the Interconnection Point.
- c) The sum of the Confirmed Nominations for EPCOR and Other Shippers ("**Total Confirmed Nominations**") for each Nomination Cycle shall be the quantity of gas to be transported and delivered by Union and received by EPCOR at the Interconnection Point.

2. Operations and Management of Operating Variances

- a) Union shall provide EPCOR daily telemetry estimates of the total quantity of gas flowed at the Interconnection Point (the "**Measurement Estimate**").
- b) The "**Daily Operating Imbalance**" is the difference between the Total Confirmed Nominations for a Gas Day and the Measurement Estimate for such Gas Day.
- c) EPCOR shall use reasonable efforts to adjust operations at the EPCOR System or adjust nominations by EPCOR and Other Shippers for delivery of gas at the Interconnection Point as necessary in order that the Daily Operating Imbalance is maintained within the greater of:

- i. Plus or minus 2.0% of the Total Confirmed Nominations;
 - ii. Plus or minus 2.0% of the average of Total Confirmed Nominations for the previous thirty days; or
 - iii. 2,111 gigajoules.
- d) The “**Cumulative Operating Imbalance**” at any time is the accumulative Daily Operating Imbalance for all Gas Days from and after the date hereof to and including that Gas Day.
- e) The Parties agree to eliminate each accumulated imbalance in as short a period of time as possible through nominating quantities to address the accumulated imbalance; such nominated quantity a “**Make-Up Quantity**”.
- f) EPCOR shall use reasonable efforts to adjust operations at the EPCOR System or adjust nominations by EPCOR and Other Shippers for delivery of gas at the Interconnection Point, and/or nominate a Make-Up Quantity as necessary to ensure that the Cumulative Operating Imbalance is maintained within the greater of:
 - i. Plus or minus 4.0% of the Total Confirmed Nominations;
 - ii. Plus or minus 4.0% of the average of Total Confirmed Nominations for the previous thirty days; or
 - iii. 4,221 gigajoules.
- g) Notwithstanding any other provision of this Agreement, Union may take whatever action it deems necessary to reduce the Daily Operating Imbalance and Cumulative Operating Imbalance to zero if Union determines such an action is reasonably necessary: (a) to protect the integrity of its pipeline system; and/or (b) to meet all of Union’s firm contractual obligations. Such actions by Union may include, without limitation, adjustment of control valves and reductions to nominations for EPCOR and other Shippers. Union shall provide EPCOR notice of such action as soon as practicable after determining such action is necessary.

Union shall provide EPCOR with online access via *Unionline* to daily reports that will identify Total Confirmed Nominations, Measurement Estimate, Daily Operating Imbalance, Cumulative Operating Imbalance, the fees applicable to the Daily Operating Imbalance and the fees applicable to the Cumulative Operating Imbalance outlined in Section 4 herein.
- h) For the purposes of allocating gas and determining transportation invoices

pursuant to the Gas Transportation Contracts and other Shippers' Gas Transportation Contracts, the quantity of gas transported and delivered by Union to EPCOR at the Interconnection Point shall be equal to each shipper's Confirmed Nomination.

3. Imbalances

- a) The actual measured quantity of gas that flowed at the Interconnection Point for each day (the "**Actual Quantity**") will be measured in gigajoules and reported as unofficial measurement on a daily basis by Union to EPCOR as soon as possible on *Unionline*, but official measurement will be provided not later than three business days after the end of the month.
- b) For each Gas Day in the prior month, Union shall determine the absolute value difference ("**Daily Imbalance**") between the Total Confirmed Nominations and the Actual Quantity for such Gas Day.
- c) For each Gas Day in the prior month, Union shall determine the absolute value of accumulated Daily Imbalances for all Gas Days up to and including that Gas Day ("**Cumulative Imbalance**").

4. Fees

- a) Each month upon receipt of an invoice from Union, EPCOR shall pay to Union, the Daily Balancing Fees and Cumulative Balancing Fees (both, defined below) for all Daily Imbalances and Cumulative Imbalances (collectively the "**Balancing Fees**"). For purposes of determining the Balancing Fees payable by EPCOR:
 - i. All Daily Imbalances and Cumulative Imbalances for the Interconnect Point shall be deemed to be the result of nominations by EPCOR and all Other Shippers and deliveries pursuant to the Gas Transportation Contracts and Other Shippers' Gas Transportation Contracts;
 - ii. The Total Authorized Quantity ("**TAQ**") shall be equal to the sum of the Confirmed Nominations for EPCOR and all Other Shippers at the Interconnection Point; and
 - iii. The Average Authorized Quantity ("**AAQ**"), shall be equal to the average of the sum of the Confirmed Nominations for EPCOR and all Other Shippers at the Interconnection Point for the previous thirty days.
- b) If any Daily Imbalance and Cumulative Imbalance is a result of an operational error caused by Union, any Balancing Fees in respect of such

Daily Imbalance or Cumulative Imbalance shall be waived by Union; and

Daily Balancing Fees

Daily Balancing Fees are calculated on a daily basis for each shipper (including EPCOR and Other Shippers), which fees are equal to:

Tier 1 Quantity times Tier 1 Fee; plus

Tier 2 Quantity times Tier 2 Fee; plus

Tier 3 Quantity times Tier 3 Fee: plus

Tier 4 Quantity times Tier 4 Fee.

The quantities and Daily Balancing Fees for each tier shall be determined based on the table below:

Daily Balancing Fees and Tiers

	Lower Limit	Upper Limit	Daily Balancing Fee
Tier 1	Zero	Greater of: 2% of TAQ, or 2% of AAQ, or 2,111 GJ	No Fee
Tier 2	Greater of: 2% of TAQ, or 2% of AAQ, or 2,111 GJ	Greater of: 4% of TAQ, or 4% of AAQ, or 4,221 GJ	0.2 times TCPL Eastern Zone Toll*
Tier 3	Greater of: 4% of TAQ, or 4% of AAQ, or 4,221 GJ	Greater of: 8% of TAQ, or 8% of AAQ, or 8,443 GJ	0.5 times TCPL Eastern Zone Toll*
Tier 4	Greater of: 8% of TAQ, or 8% of AAQ, or 8,443 GJ	Greater of: 10% of TAQ, or 10% of AAQ, or 10,553 GJ	0.75 times TCPL Eastern Zone Toll*
Tier 5	Greater of: 10% of TAQ, or 10% of AAQ, or 10,553 GJ	Infinity	1.0 times TCPL Eastern Zone Toll*

* TransCanada Pipelines Limited – Empress to KPUC EDA Firm Transportation Toll, as amended from time to time

Cumulative Balancing Fees

Cumulative Balancing Fees are calculated on a daily basis for each shipper (including EPCOR and Other Shippers), which fees are equal to:

Tier 1 Quantity times Tier 1 Fee; plus

Tier 2 Quantity times Tier 2 Fee.

The quantities and Cumulative Balancing Fees for each tier shall be determined based on the table below:

Cumulative Balancing Fees and Tiers

	Lower Limit	Upper Limit	Cumulative Balancing Fee
Tier 1	Zero	Greater of: 4% of TAQ, or 4% of AAQ, or 4,221 GJ	No Fee
Tier 2	Greater of: 4% of TAQ, or 4% of AAQ, or 4,221 GJ	Greater of: 6% of TAQ, or 6% of AAQ, or 6,332 GJ	0.15 times TCPL Eastern Zone Toll*
Tier 3	Greater of: 6% of TAQ, or 6% of AAQ, or 6,332 GJ	Infinity	0.25 times TCPL Eastern Zone Toll*

* TransCanada Pipelines Limited – Empress to KPUC EDA Firm Transportation Toll, as amended from time to time

5. Notice

All notices and other communications given pursuant to this Agreement shall be in writing signed by hand by an authorized agent or employee of the sender, or by facsimile transmission of such a writing and shall be deemed effective when received at the respective Party's address set forth below:

In the case of Union:

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

Attention: Director - Gas Control, Capacity Planning and GMS
 Fax #: 519-436-5364

In the case of EPCOR:

EPCOR Natural Gas Limited Partnership
c/o EPCOR Utilities Inc.
2000 – 10423 101 St NW
Edmonton, Alberta
T5H 0E8

Attention: XXXXXXXXXXXXX

FAX: XXXXXXXX

Changes to the above addresses shall be made by a Party notifying the other Party in writing of the change.

6. Miscellaneous

- a) This Agreement shall be effective commencing the Commencement Date (as defined in the Gas Transportation Contract), and shall expire at the end of all such Gas Transportation Contracts with an Interconnection Point as a point of delivery. Any Daily Imbalance or Cumulative Imbalance remaining upon termination or expiry shall be eliminated within thirty (30) days of the termination or expiry of this Agreement, or within such longer period of time as may be mutually agreed to by the Parties. Despite the termination of this Agreement, in the event that all Daily Imbalances and Cumulative Imbalances which are in effect at the termination or expiry of this Agreement have not been eliminated, this Agreement shall remain in effect and be binding upon the Parties hereto until the Daily Imbalances and Cumulative Imbalances have been eliminated. Failure to agree to a method and timing of elimination of Daily Imbalances or Cumulative Imbalances entitles Union to transfer the Daily Imbalances and Cumulative Imbalances to the Gas Transportation Contract and to re-nominate the Gas Transportation Contract to eliminate the Daily Imbalances and Cumulative Imbalances over time. Once all Daily Imbalances and Cumulative Imbalances have been eliminated after the issuance of a termination or expiry notice, this Agreement shall terminate without the requirement of further notice to or from one Party to the other Party.
- b) It is the intention of the Parties to perform their obligations under this Agreement in good faith in an ongoing effort to align the delivery of gas through the Interconnection Point on a daily and cumulative basis with Confirmed Nominations. EPCOR covenants and agrees that it shall not use this Agreement as a means to intentionally loan gas from or park gas on Union's System for the benefit of EPCOR and Other Shippers.
- c) This Agreement shall be subject to the laws of the Province of Ontario and is subject to the rules, regulations, and orders of any Canadian or Provincial regulatory or legislative authority as may from time to time

exercise lawful jurisdiction.

- d) No waiver by either Union or EPCOR of any of one or more defaults by the other in the performance of any provision of this Agreement shall operate or be construed as a waiver of any continuing or future default or defaults whether of a like or different character, a waiver of the Parties' obligation to eliminate a Daily Imbalance and a Cumulative Imbalance.
- e) No amendment, supplement, modification, or waiver or termination of this Agreement and, unless otherwise specified, no consent or approval by any party, shall be binding unless executed in writing by the party to be bound thereby.
- f) This Agreement shall enure to the benefit of and be binding upon the Parties and their respective successors (including any successor by reason of amalgamation of any party) and permitted assigns.
- g) This Agreement may be executed by the Parties in counterparts and may be executed and delivered by and delivered by facsimile and all such counterparts and facsimiles shall together constitute one and the same agreement.

[signature page follows]

IN WITNESS WHEREOF the Parties hereto have executed this Agreement effective as at the date written above.

UNION GAS LIMITED

Name: _____

Title: _____

EPCOR Natural Gas Limited Partnership,
by its general partner, **XXXXX**

Name: _____

Title: _____

Name: _____

Title: _____

DRAFT

EPCOR GAS SUPPLY PLAN: 2018-2021

SEPTEMBER 2018

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1. Executive Summary

In the winter of 2013-14, Ontario experienced much colder than expected weather, which caused the demand and price of natural gas to increase significantly above what was forecasted by the two major natural gas utilities in the province. In response, the Ontario Energy Board (OEB) undertook a review of the adequacy of existing gas supply planning and revised the process to mitigate the cost impact of future extreme weather events on consumers. The output of the review process was a Framework for the Assessment of Distributor Gas Supply Plans (“the Framework”), which guides the OEB’s assessment of the cost consequences of each distributor’s Gas Supply Plan by applying the objectives of transparency, accountability, and performance measurement.

As a new natural gas distributor in Ontario, EPCOR Southern Bruce Inc. (“EPCOR”) has developed the following Gas Supply Plan (“Supply Plan”) in accordance with the criteria and guiding principles defined in the Framework. To satisfy the Framework requirements, EPCOR developed a demand forecast that reflects its expected annual load profile over a three-year period starting November 2019, when the Utility expects to begin delivering gas to customers. The demand forecast was used as an input in the supply options analysis which models three Supply Options under a normalized winter weather scenario:

- (1) Annual Baseload Supply Option: Baseload commodity procurement, adjusted annually, with optimized annual storage procurement,
- (2) Seasonal Baseload Supply Option: Baseload commodity procurement, adjusted upward in the winter period, with optimized annual storage procurement, and
- (3) Month-to-Month Supply Option: Baseload commodity procurement, adjusted monthly, with no storage procurement.

To reliably meet forecasted Peak Day, seasonal, and annual demand, the three supply strategies also rely on the procurement of prompt month gas, prompt day gas, and intraday balancing gas, as well as the Load Balancing Agreement (LBA) under the M17 transportation contract that has been proposed to EPCOR by Union Gas Ltd. (“Union”).

A sensitivity analysis was performed whereby the three Supply Options were endogenously shocked for above and below normal winter demand, five-year winter commodity and storage price volatility, and average commodity prices reflective of winter 2013-2014. Applying the Framework’s guiding principles of cost-effectiveness and reliability and security of supply, the results of the sensitivity analysis demonstrate that the strategy of procuring baseload commodity on an annual basis, while leveraging optimized storage injection and withdrawal rights and the M17 LBA, will limit rate volatility and deliver value to customers even under extreme weather and pricing events.

The supply options analysis demonstrates how the guiding principles of cost-effectiveness and reliability are applied to the gas supply planning process such that the final natural gas commodity and storage procurement plan achieves these principles. Cost-effectiveness is assessed both in terms of both rate predictability and cost to service the portfolio. Cost-effectiveness is balanced against reliability and

security of supply, which considers flexibility in storage and commodity procurement. Cost-effectiveness does not supersede reliability in importance, or vice versa, rather the two principles are assessed together, and the final supply option is a balance of the two that ensures customers receive reliable supply at least cost. Using this approach ensures the Supply Plan can be adapted for any unexpected changes in demand, weather, and market conditions over the planning horizon.

Based on these guiding principles, the Annual Baseload Supply Option is chosen as the Supply Plan and used to define associated procurement processes and risk mitigation policies.

2. Introduction

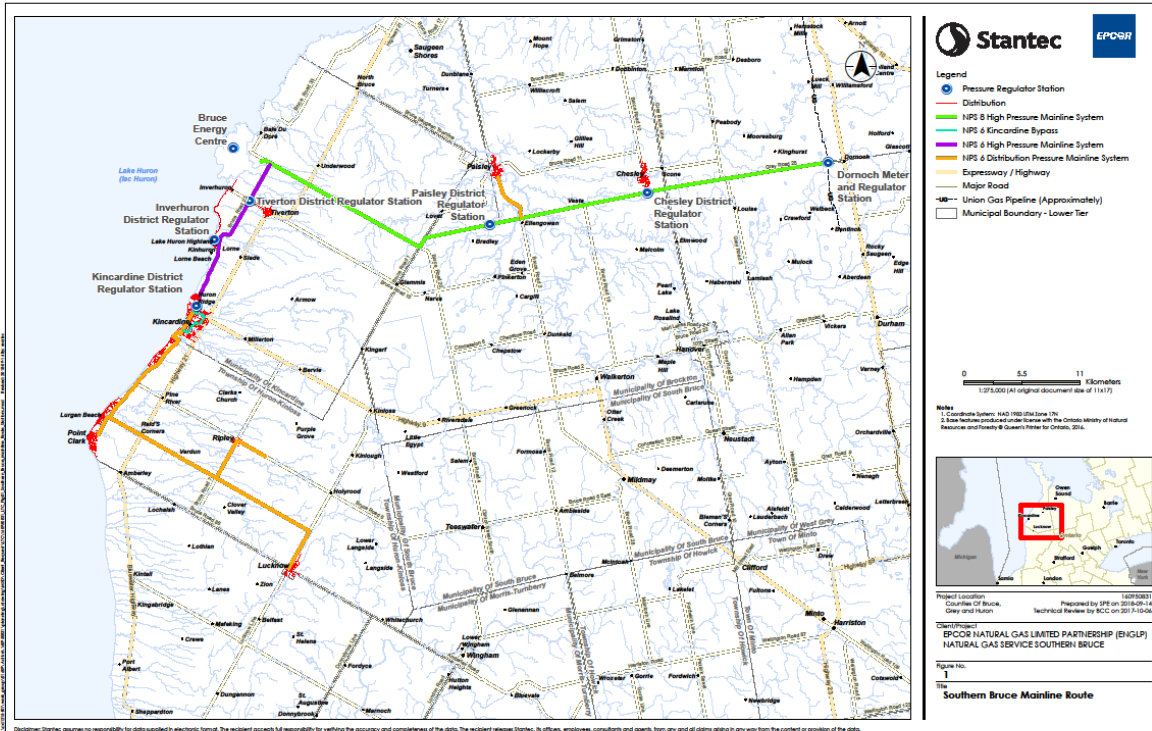
2.1. Objectives

The objective of the EPCOR Southern Bruce Inc. (“EPCOR”) Gas Supply Plan (“Supply Plan”) is to develop a right-sized portfolio of natural gas commodity and storage assets that ensures consumers receive a cost-effective, reliable and secure natural gas supply. The portfolio is designed to strike a balance between these two guiding principles, which are consistent with the Ontario Energy Board (OEB)’s legislated mandate to protect the interest of consumers with respect to prices and the reliability of gas service. The Supply Plan was developed by following the Framework for the Assessment of Distributor Gas Supply Plans (“the Framework”), which will guide the OEB’s assessment of the cost consequences of EPCOR’s Supply Plan.

The Framework requires that, along with cost-effectiveness and reliability of supply, the Supply Plan is aligned with public policy objectives. As the current Ontario government has tabled legislation that would repeal the *Climate Change and Low-Carbon Economy Act, 2016*, at the time of drafting there are no explicit public policy mandates in place at the provincial level, particularly related to Cap and Trade or Renewable Natural Gas, that EPCOR considered while developing the Supply Plan. If public policy objectives are introduced in the future, EPCOR will include an approach to achieving those objectives in the annual updates. For example, EPCOR is closely monitoring the development of the Federal Clean Fuel Standard regulatory framework and will assess compliance options and associated costs when the regulation is enacted.

The Supply Plan is intended to provide strategic direction that will guide EPCOR’s ongoing decisions related to its natural gas portfolio such that the Utility is able to meet Peak Day, seasonal, and annual demand throughout the winter and summer periods for General Service customers and Contract Customers at least cost. The plan does not commit EPCOR to procuring a set volume and/or source of natural gas, but rather provides a roadmap that is sufficiently flexible, such that reliable and cost-effective natural gas commodity and storage assets can still be procured in the event of changing or unexpected demand, consumption patterns, weather, or market forces.

2.2. Summary of Service Area



2.3. Significant Changes

As this is the first Supply Plan submitted by EPCOR, there are no significant changes to report. Significant changes from this and future Supply Plans, including resulting consumer impact of those changes, will be included in annual updates and subsequent five-year Supply Plans as warranted. Process, Resources and Governance

The development of the Supply Plan was a coordinated effort between EPCOR and Blackstone Energy Services Inc., a third-party consultant, (“Blackstone”). EPCOR procured Blackstone for the following scope of services:

- Conduct the supply options analysis, including building the underlying storage, commodity, and cost models, and developing the forecasts that inform the analysis (e.g. price, weather)
- Conduct the sensitivity analysis that endogenously shocks the Supply Options considered in the Plan
- Recommend a Supply Option by applying the principles of cost-effectiveness and reliability
- Provide a natural gas market analysis and discussion of future trends
- Co-develop and advise on the procurement policies and risk management framework

Biographies of key personnel are included in Appendix A.

3. Demand Forecast

To develop a natural gas supply portfolio, EPCOR first constructed a demand forecast that reflects its expected customer profile throughout the year over a three-year horizon from 2019 to 2022. This first step ensures that EPCOR procures an efficient volume of natural gas commodity and storage assets. As EPCOR is servicing a new area where the rate base is expected to grow as customers switch from propane – the traditional heating fuel in the service area – to natural gas, the demand forecast must also sufficiently flexible to mitigate risks associated with a scenario where actual demand growth significantly deviates from the forecast.

The utility will service two main classes of customers: General Service and Contract Customers. Contract Customers make up 65% of EPCOR's demand profile by volume. There are currently two customers under this classification, and both will contract for their own natural gas supplies and their own storage assets to manage fluctuations in demand. As such, the consumption profile of two customers is not included in the demand forecast and Supply Option Analysis.

General Service customers make up the remaining 23% of EPCOR's natural gas system, and are comprised of residential, commercial, and agricultural customers. Residential customers make up 64.1% of EPCOR's General Service demand profile, and commercial customers make up 29.8%. Both customer segments have flat, non-weather dependent demand requirements during the summer period (April to October), and heat-sensitive demand during the winter period (November to March).

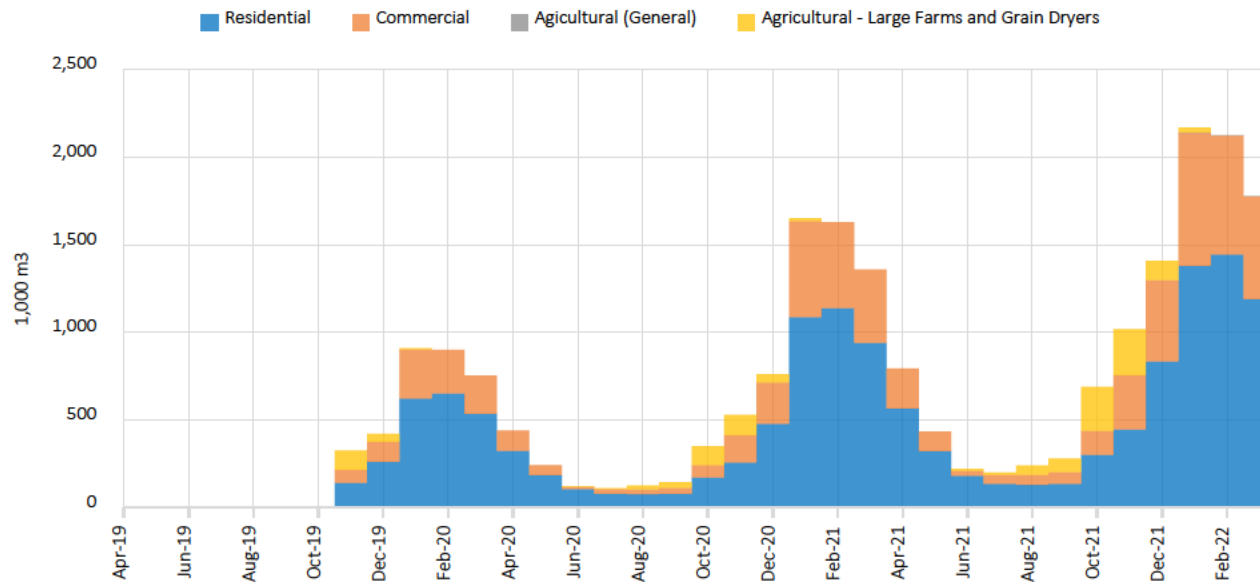
Agricultural customers, which make up the remaining 6% of General Service demand, are expected to use natural gas for production purposes, and as such, their natural gas usage is expected to vary year-on-year depending on yield, making it more difficult to forecast demand due to a lack of historical data.

The forecasted demand used to develop the Supply Plan is based on an annual forecast developed during the Common Infrastructure Plan "CIP" process. For residential and commercial customers, the annual forecast was broken down to monthly volumes by applying the monthly percentage of annual CIP-based usage from the OEB Calculator. For large agricultural customers and grain dryers, monthly breakdown was completed through a consultative process, where the annual CIP-based usage was broken down to monthly profiles based on information received by customers on their existing energy needs.

The forecast captures year-on-year demand growth as more customers connect to the EPCOR distribution system. The annual increase in consumption volumes are based on the level of customer attachments EPCOR committed to during the CIP process. Customer attachments were deemed to be a competitive metric of the CIP process and the risk associated with the materialization of the forecast is borne by the utility for the 10-year rate stability period.

As shown Figure 1, demand growth is expected among all three customer segments. A numeric breakdown of monthly demand volumes can be found in Appendix B.

Figure 1 - Forecast Monthly General Service Demand, by Customer Type



Source: EPCOR Analysis, CIP Process

Forecasted demand is used as the basis to determine the monthly commodity procurement volumes, storage sizing, and daily balancing requirements under the three Supply Options assessed in the supply options analysis. In addition, five Peak Days – a day that is at least 50% colder than average for the month – are included in the forecasted demand each year to account for potential extreme cold weather events when modeling storage and procurement volumes. The inclusion of Peak Days in the forecasted demand is a risk management strategy to ensure that the Supply Plan can deliver on reliability and cost-effectiveness during extreme weather events and is flexible enough to withstand unexpected demand and price shocks that deviate beyond historical norms. The demand forecast assumes two Peak Days occur in January, two Peak Days occur in February, and one Peak Day occurs in March.

Contract Demand, as defined under EPCOR’s M17 Contract (described further in Section 4.1.3), is not considered in the demand forecast for this Supply Plan. EPCOR’s Contract Demand under the M17 is based on the expected capacity required to meet Peak Day conditions in EPCOR’s Year-10 gas flow, which is 138,200 m³ per day (or 5,377 GJ per day) for General Service customers. Based on the demand forecast shown in Figure 1, EPCOR is not expecting to make full use of the Contract Demand in the three-year planning horizon covered by this Supply Plan and Contract Demand is expected to have a negligible impact on deliverability and supply reliability of natural gas to customers during this period.

4. Supply Options

4.1. Key Assumptions

Three strategies, or Supply Options, are considered for the procurement of natural gas commodity and storage assets to meet the demand forecast established in Section 3, and while the demand forecast serves as the primary input used to develop the Supply Options, the following base assumptions also underpin each option:

4.1.1. Weather

Each Supply Option assumes a normal winter weather scenario, with five Peak Days that align with the Peak Days included in the demand forecast (two in January, two in February, and one in March).

4.1.2. Commodity

Each Supply Option assumes baseload commodity volume is procured at Dawn, priced at ICE NGX Union Dawn Day Ahead Index.

4.1.3. Transportation

Each Supply Option assumes gas supply is delivered from Union's Transportation Network to EPCOR's distribution network through the M17 Transportation Contract, which transports the gas from Dawn Receipt Point to the Dornoch Interconnection Point. The volume of transportation capacity that will be contracted from Dawn to the Dornoch Interconnect Point and is included in each of the three Supply Options, is based on Year-10 Design Day requirements of the franchise area.

EPCOR has not considered a diverse transportation portfolio upstream of Dawn for the first three years of service, as all gas supply will be purchased and indexed at Dawn and the storage contract will also be based at Dawn. In the first three years of service when demand is growing, EPCOR does not expect demand to exceed Contract Demand. EPCOR will revisit the transportation portfolio in the next Supply Plan.

For the purpose of the Supply Plan, EPCOR assumes 138,200 m³ of the total Contract Demand of 227,912 m³ will be allocated to General Service customers – as such, the M17 transportation cost in this supply plan is calculated based on a Contract Demand of 138,200 m³. M17 transportation cost borne by Contract Customers are not expected to be borne by General Service customers and are excluded from this Supply Plan.

4.1.4. Storage

Storage is included in the development of the Supply Options, as EPCOR will contract for storage as a key tool to manage price risk and ensure supply reliability to customers by managing variances between supply and demand. In order to avoid the situation occurring where large volumes of gas need to be purchased from the spot market, EPCOR forecasts storage targets such that the maximum deliverability

from storage could be maintained until the end of March and such that deliverability from storage would be sufficient to meet a peak day as late as March 31 given a normalized weather scenario. EPCOR's M17 Contract Demand, which is based on forecasted capacity that will meet Peak Day conditions in Year-10 of flowing gas, is not considered in optimizing storage. Contract Demand will still be considered in the transportation cost forecast of each Supply Option (transportation charges under the M17 are based on Contract Demand).

When supply exceeds demand, EPCOR has the ability to store the excess supply in its contracted storage account. Conversely, when demand exceeds supply, EPCOR uses this stored supply to service the deficiency. Storage also enables EPCOR to procure gas at times of the year when the cost of gas is lower and/or less volatile.

The approach to developing right-sized storage assets for EPCOR's first three years of service uses the established demand forecast to model planned injection and withdraw volumes on a daily basis, pursuant to injection and withdrawal rights and other contract parameters. A detailed description of the method used to optimize storage can be found in Appendix C.

4.1.5. Daily Balancing Management

The M17 transportation contract includes a provision for daily balancing called the Load Balancing Agreement (LBA). Under the M17 LBA, EPCOR has the ability to manage daily mismatches between supply (Nominations) and demand (Measurement Estimate) at the Dornoch Interconnection Point and eliminate the imbalance (and accumulated imbalance) on the next earliest gas day to the best of its ability. EPCOR considers the LBA another tool that can be used in the Supply Plan to ensure reliability and cost-effectiveness of supply.

The three Supply Options reviewed assume that that when purchased gas exceeds consumed gas, the excess gas first maximizes the use of the firm injection rights. Excess gas remaining after storage injection is captured as a daily positive imbalance under the M17 LBA.

Demand in excess of procured volume and maximum allowed amount withdrawn from storage is captured as a daily negative imbalance under the M17 LBA.

EPCOR will prioritize clearing the daily and cumulative LBA imbalance on a daily basis through the following means:

- 1) If demand exceeds daily delivery volume,
 - a. excess demand will first be met by reducing the cumulative positive LBA imbalance;
 - b. If cumulative LBA remains positive after the step above, and there is excess capacity in the firm injection rights, volumes from the cumulative LBA will be injected into storage; or
 - c. If a positive cumulative LBA was not able to meet excess demand, gas from storage will be withdrawn, up to the firm withdrawal rights. Any remaining excess demand will be captured

as a negative daily LBA imbalance, which will be cleared through spot procurement the next day.

- 2) If daily delivery volume exceeds demand,
 - a. excess volume will first be used to reduce the cumulative negative LBA imbalance;
 - b. If daily delivery volume was able to reduce the negative LBA imbalance to 0, and there is excess capacity in the firm injection rights, the remaining delivered volumes will be injected into storage.
 - c. If daily delivery volume was able to reduce the negative LBA imbalance to 0, and there is no excess capacity in the firm injection rights, the remaining delivered volumes will contribute to a positive LBA imbalance.

4.2. Description of Supply Options

Blackstone worked with EPCOR to build an integrated commodity portfolio tracking model that tracks and forecasts storage positions, fuel requirements, and potential triggers for daily balancing requirements due to supply-demand mismatch (for example, if demand exceeds procurement volume plus maximum firm withdrawal volume). The model considers: forecasted demand; procurement volumes, and forecasted storage position and parameters, and the M17 LBA position resulting from imbalances between demand and supply.

Using the model, three Supply Options were considered. Each option, along with the associated risks and opportunities in relation the other options and the guiding principles, are described in Table 1 below. The risks and opportunities are evaluated quantitatively in the supply options analysis (Section 0) when each option is subjected to an endogenous shock.

Table 1 - Three Supply Options Considered for the Procurement of EPCOR's Natural Gas Portfolio from 2019-2022.

Supply Option	Description	Risks	Opportunities
Annual Baseload Procurement	A flat baseload firm procurement volume is adjusted on a Gas Year basis, based on forecasted average annual demand for the Gas Year. Adjustments to the flat baseload volumes	Cost: The storage requirement for this Supply Option is higher than the other Supply Options, as summer period procurement volumes in excess of demand in those months will be injected into storage and withdrawn to cover demand above the flat annual	Flexibility: A higher maximum storage balance will increase injection and withdrawal rights, giving more flexibility in injection/withdrawal volumes and reducing likelihood of requiring spot gas for daily balancing and minimizing M17 LBA imbalances. For example, mismatches in previous day's

Supply Option	Description	Risks	Opportunities
	<p>(Baseload Top Up) are considered on a Gas Year Basis to ensure deliverability up to March 31st.</p> <p>Storage is optimized to meet baseload demand on an annual basis.</p>	<p>procurement volume in the winter period. Higher storage requirement would result in higher storage costs.</p>	<p>supply and demand can be adjusted through additional withdrawal from storage in the following day rather than by purchasing gas on the spot market.</p> <p>Reliability: This option increases reliability since a fixed monthly volume is committed to in advance.</p> <p>Cost: In addition to limiting likelihood of spot gas purchases, this option offers price stability by procuring a higher volume of gas during the summer period, when commodity prices are on average lower and less volatile.</p>
<p>Seasonal Baseload Procurement</p>	<p>Annual baseload procurement volume is set on a Gas Year basis.</p> <p>Additional winter baseload volume, based on forecasted average seasonal demand each year, is determined and procured prior to each upcoming winter period.</p> <p>Adjustments to the flat baseload volumes (Baseload Top Up) are considered on a Gas Year Basis to ensure</p>	<p>Flexibility: A lower maximum storage balance will reduce injection and withdrawal rights, giving less flexibility in injection/withdrawal volumes and increase likelihood of requiring spot gas for daily balancing and increasing risk of incurring M17 LBA imbalances.</p> <p>Cost: In addition to limiting likelihood of spot gas purchases, this option offers price stability by procuring a higher volume of gas during the summer period, when commodity prices are on average lower and less volatile.</p>	<p>Cost: The storage requirement for this Supply Option is between the other Supply Options, as higher winter procurement volume reduces storage requirement.</p> <p>Higher procurement volume during the winter period also increases price risk.</p> <p>Reliability: This option provides reliability in gas supply, since a fixed monthly volume is committed to in advance.</p>

Supply Option	Description	Risks	Opportunities
	<p>deliverability up to March 31st.</p> <p>Storage is optimized to meet baseload demand on a seasonal basis.</p>		
<p>Month-to-Month Procurement</p>	<p>Procurement volume is adjusted monthly based on forecasted monthly demand. No storage assets are procured.</p>	<p>Cost: This Supply Option would reduce storage cost to zero.</p> <p>Flexibility: Without the procurement of storage, the Supply Option relies on the M17 LBA and spot gas purchases to manage differences in actual demand compared to baseload volume.</p>	<p>Cost: The Option could potentially increase overall commodity cost and month-to-month price volatility of the portfolio, especially since procurement volumes will be weighted more heavily to the coldest winter period when price volatility is historically the highest each year.</p> <p>Cost may also be high in this option if the daily and cumulative imbalances under the M17 LBA put EPCOR in a penalty position, for example if procured volume is consistently higher than daily demand in any given month, since a positive LBA balance cannot be reduced through storage injection.</p>

The amount of storage required under each Supply Option is determined, in part, by the degree of flexibility in procurement volume on a month-to-month, seasonal, or annual basis. The storage volumes optimized under each Supply Option are summarized in Table 2.

Table 2 - Optimized Maximum Storage Balance Under Each Supply Option

Gas Year	Unit	Month-to-Month Procurement	Annual Baseload Procurement	Seasonal Baseload Procurement
2019	GJ/Year	0	48,860	30,443
2020	GJ/Year	0	82,305	58,401
2021	GJ/Year	0	129,476	65,619

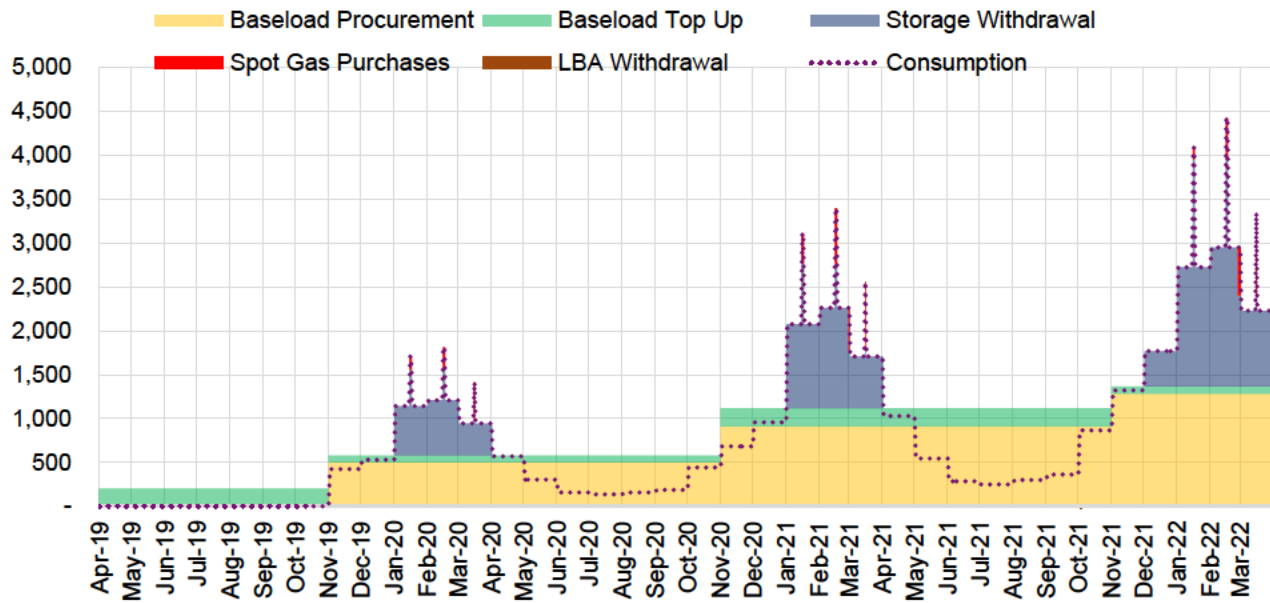
Each of the three Supply Options are developed using a portfolio model built by Blackstone.

Figure 2 to Figure 4 provide a visual representation of each of the three Supply Options. A summary of the numerical breakdown of commodity procurement volumes can be found in Appendix C.

Under the Annual Baseload Supply Option, shown in

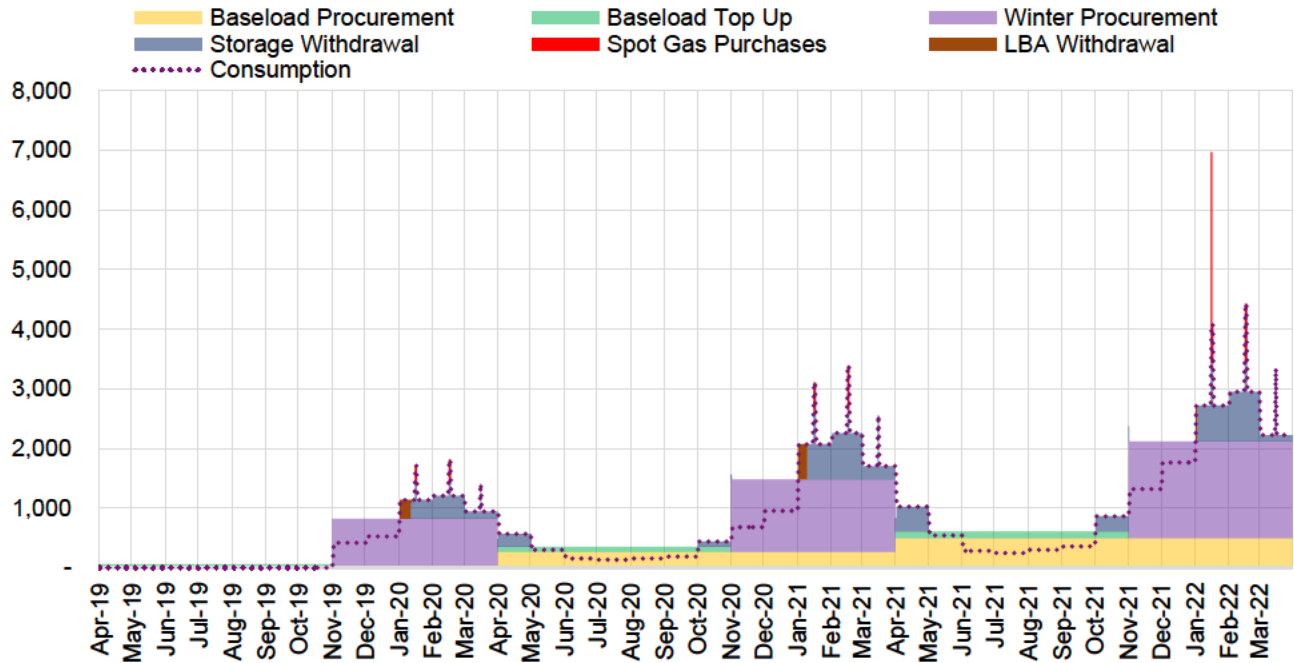
Figure 2, 499 Gigajoules (GJ) per day of supply is procured in Gas Year 2019, 907 GJ per day is procured in Gas Year 2020, and 1,281 GJ per day of supply is procured in Gas Year 2021. The Baseload Top Up amounts are the volumes required to ensure the storage balance does not fall below zero in any given month, ensuring deliverability from procured volume and storage withdrawal up to March 31st. For example, the Baseload Top Up in Gas Year 2019 ensure that in February 2020, when the storage withdrawal is the largest in any month, there is enough storage volume to accommodate the withdrawal to meet demand. In the Annual Baseload Supply Option, spot gas purchases are generally limited to Peak Days, when spot gas must be procured to meet demand.

Figure 2 - Annual Baseload Procurement – Consumption vs. Delivery (GJ/Day)



Under the Seasonal Baseload Supply Option, shown in Figure 3, the M17 LBA is leveraged more than in the Annual Baseload Supply Option because the injection and withdrawal rights are lower. As shown in Table 2 above, over the three-year planning horizon, the maximum storage balance in the Annual Baseload Procurement Option is 60-97% higher than in the Seasonal Baseload Procurement Option. While the Baseload Procurement is lower in the Seasonal Baseload Supply Option, the Winter procurement is relatively high, at 466 GJ per day in Gas Year 2019, 874 GJ per day in Gas Year 2020 and 1,574 GJ per day in 2021. Again, spot gas procurement is generally procured to meet Peak Day demand, but total spot gas procurement volumes are higher each year than under the Annual Baseload Supply Option.

Figure 3 - Seasonal Baseload Procurement – Consumption vs. Delivery (GJ/Day)



In the Month-to-Month Supply Option, shown in Figure 4, no storage is procured, meaning that the M17 LBA is used to balance mismatches between supply and demand and spot gas purchases are relied on to meet Peak Day demand.

4.3. Cost of Supply Options

Table 3 summarizes the expected cost of servicing each of the three supply portfolio strategies. The cost of each procurement ranges from \$4.4609 per GJ in the Month-to-Month Supply Option to \$4.6241 per GJ in the Seasonal Baseload Supply Option. In the Month-to-Month Supply Option, the cost associated with Spot Gas Purchases is the highest, however, the cost of storage is zero. Conversely, the cost of storage is highest in the Annual Baseload Supply Option, however, the commodity cost of Spot Gas is the lowest. The M17 Contract costs are based on the Contract Demand for General Service customers only (i.e. no Industrial customers are included in the cost analysis). A breakdown of the costs by year can be found in Appendix E.

Figure 4 - Month-to-Month Procurement – Consumption vs. Delivery (GJ/Day)

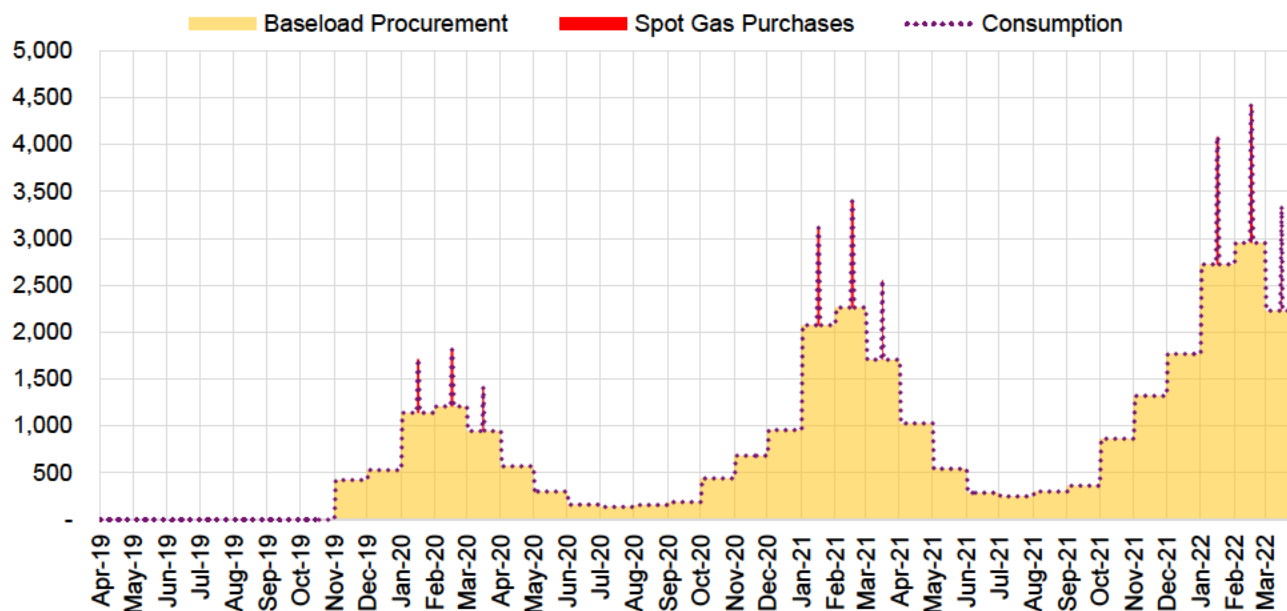


Table 3 – Cost of Supply Options

Particulars	Cost of Supply Options		
	Annual Baseload Supply Option	Seasonal Baseload Supply Option	Month-to-Month Supply Option
Commodity Cost (Baseload)	\$2,673,340	\$2,834,160	\$2,789,440
Commodity Cost (Spot Gas)	\$28,091	\$34,132	\$50,707
Transportation Fuel Cost	\$19,617	\$19,617	\$19,617
Storage Plan Cost	\$176,599	\$105,178	\$0
Injection/Withdrawal Cost	\$3,139	\$1,898	\$0
M17 LBA Charges	\$0	\$7,250	\$0
M17 Transportation Charges	\$929,508	\$929,508	\$929,508
Management Cost	\$105,000	\$105,000	\$105,000
Total Cost	\$3,935,293	\$4,036,744	\$3,894,273
Cost per GJ of Demand	\$4.5079	\$4.6241	\$4.4609
Cost per m3 of Demand	\$17.5358	\$17.9879	\$17.3530

4.4. Additional Considerations

4.4.1. Market-Based Commodity Solutions

Market-based solutions are riskier to employ from a cost containment perspective due to price volatility and commodity availability, which is why EPCOR has constructed portfolio options that minimize market exposure. EPCOR will use market-based solutions to meet gas supply requirements (i.e. spot gas purchases) if storage parameters are not adequate to meet demand (i.e. insufficient storage balance and insufficient storage withdrawal rights). This approach will be taken if supply deficiencies are not able to be

addressed through the utilization of contracted supply and storage assets. Market-based solutions for the EPCOR portfolio options are limited to spot gas purchases when daily demand exceeds the sum of storage deliverability committed procurement volumes, and a positive M17 LBA balance. EPCOR will also consider additional market-based storage if they introduce flexibility and supply reliability to portfolio in a cost-effective manner.

4.4.2. Unutilized Capacity

The procurement options have been constructed in such a way as to minimize the incidence of underutilized capacity by optimizing storage assets and the use of the M17 LBA. EPCOR will seek to recover all costs related to unutilized transportation and storage capacity. For example, the costs associated with unutilized M17 transportation or storage capacity will be passed on to consumers, pending Board approval.

EPCOR also notes that charges related to transportation, storage, and load balancing charges can be high in the first years of service. Therefore, flowing through these upstream costs in the early years, when the system's volume is low, will result in high volumetric transportation charges and making natural gas an uncompetitive option for potential customers. EPCOR is proposing to charge a transportation rate that is acceptable by the customers and capitalize the difference between the transportation revenue and costs as a regulatory asset. Details are in the EBRO-2018-0264. For the purposes of the Supply Plan, these costs are unadjusted to reflect the higher upstream costs borne to EPCOR during the first years of service.

4.4.3. Long-Term Contracts

EPCOR intends to enter into a Transportation Agreement (M17 or other service) that could be for a term of up to 30 years to transport Gas from Union's distribution system to the Dornoch Interconnection Point. Given the relative size of the EPCOR portfolio compared to other natural gas utilities that operate in the region, along with the lack of historical demand data, the company does not have plans to engage in other long-term contracts (for supply, transportation, and storage) at this point in time.

4.4.4. Other Solutions

Given the relative size of the EPCOR portfolio compared to other natural gas utilities that operate in the region, along with the lack of historical demand data, the utility has not considered other solutions related to procuring natural gas supply and storage assets at this point in time. However, in the future other solutions to manage reliability and cost may be considered. For example, EPCOR could consider procuring an additional Interruptible Hub Contract at Dawn (park-and-loan service) to provide further flexibility and reliability to the plan, with the overview of the service provided by Union as follows:

- Ability to hold a park a balance of 120,000 GJs and a loan balance of 70,000 GJs (subject to credit)
- Delivery to/by Union at a rate of \$0.110 CAD per GJ (subject to change)

Combined with the firm storage contract and the M17 LBA, the Interruptible Hub contract would be an additional tool to provide further flexibility in delivering cost-effective and reliable supply to customers.

5. Options Analysis

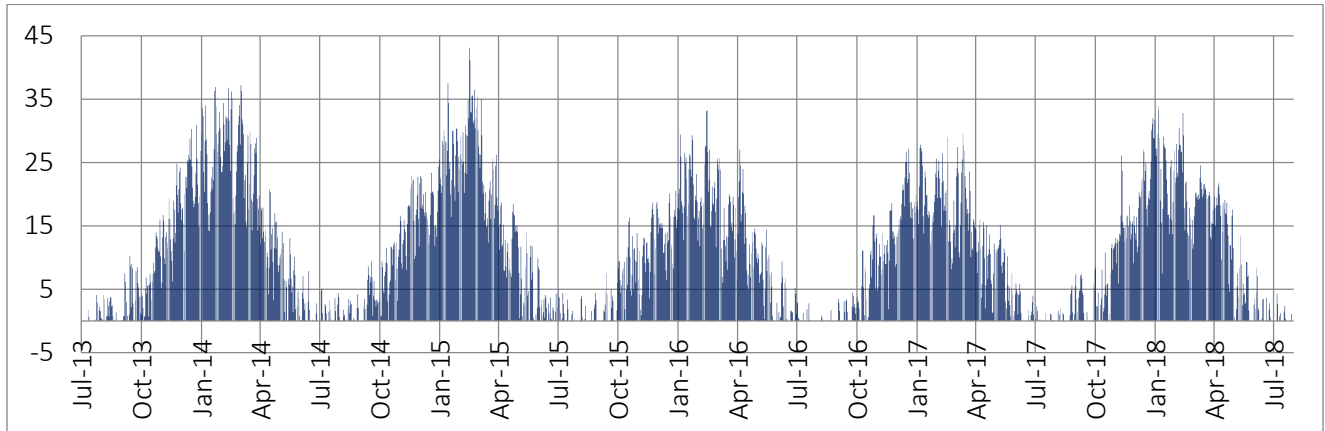
5.1. Endogenous Shocks

The supply options analysis is conducted by apply the following shocks to each of the three Supply Options described in Section 4.2. The result is a sensitivity analysis that enables each Supply Option to be assessed on the principles of cost-effectiveness, reliability of supply, and procurement flexibility.

5.1.1. Higher than normal winter daily demand

Given the minimal historical data that shows actual demand in the EPCOR natural gas system, the first endogenous shock applied in the sensitivity analysis assumes that demand is 30% higher than forecast over the winter period. This magnitude is based on historical variation in Heating Degree Days (HDD) for the EPCOR service area, using data from the Goderich, Ontario weather station (Figure 5). Generally, it is assumed that an increase in 1% heating degree day will increase natural gas demand by 0.8% (assuming 20% of winter demand is base load demand that is not weather dependent), as the demand profiles of its residential and commercial customers are weather sensitive. However, for the purposes of the options analysis, a 30% change in HDD is applied as a 30% change in demand.

Figure 5 - Heating Degree Days – Goderich, ON (°C)

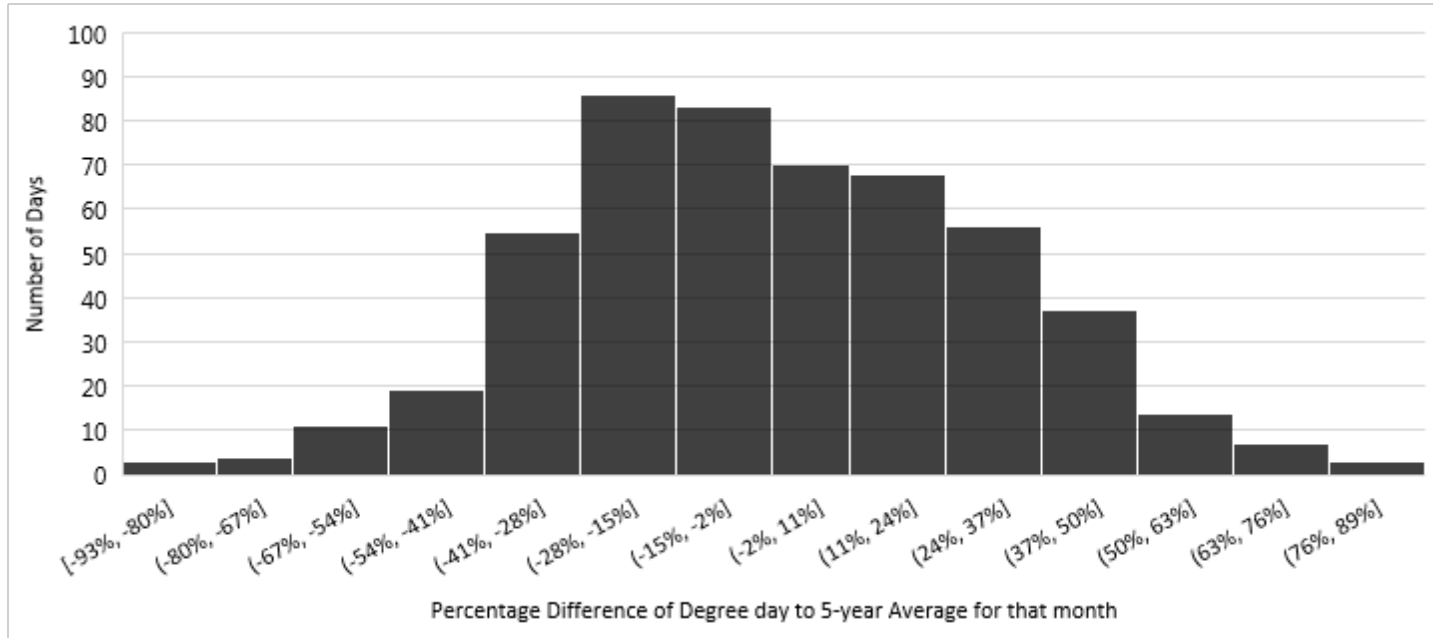


Source: Environment Canada, Goderich, ON Weather Station

To understand variations in demand for the region, analysis was conducted on how HDD (based on an 18 °C break point) deviate from monthly degree day averages over the last five years. For each month between November and March over the last five years, an average was constructed. Then, for each day in that month the HDD difference to the average and standard deviation was calculated and from those differences.

Based on this information, assuming a cumulative standard distribution curve, there is a 67.86% chance (one standard deviation) that in any given day between November and March, the HDD will be within +/- 30.19% of that month's 5-year degree day average (Figure 6).

Figure 6 - Percentage Difference of Daily HDD to Monthly Average, November to March, from 2014 to 2018



Source: Source: Environment Canada, Goderich, ON Weather Station, Blackstone analysis

The higher than normal winter demand scenario also accounts for the risk in customer growth, as actual demand growth could significantly deviate from the demand forecast. This risk is accounted for in this sensitivity case, as it captures instances where either winter demand increases by 30% due to colder than normal temperatures, or demand increases by 30% due to much higher than forecast load growth.

5.1.2. Lower than normal winter daily demand

As described in Section 5.1.1. above, assuming a cumulative standard distribution curve, there is a 67.86% probability that in any given day between November and March, the HDD will be within +/- 30.19% of that the 5-year degree day average. The second endogenous shock in the sensitivity analysis captures the case where winter HDDs fall 30% lower than average and subsequently demand in the winter period is lower than forecast.

5.1.3. Higher than normal commodity prices

To understand variations in commodity prices, analysis was conducted on how daily (spot) and monthly (prompt month) settlement prices in CAD per GJ deviate from monthly average settles over the last 5 years. For each month, an average of daily settles over the last five years was constructed (i.e. average of all June next-day settlement prices between 2014 and 2018), and for each day in that month a percent difference in settlement prices to the monthly average was calculated. Based on this information, a standard deviation was generated from the daily percentage difference (compared to the monthly

average) for each month. The same methodology was applied to monthly settlement prices during the same period.

This analysis was conducted for both monthly and daily prices. Monthly price volatility more closely matches volatility in baseload procurement prices, which would be priced at an index constructed from the weighted average of daily settles for a given month. Daily (spot) price volatility more closely matches volatility in prices of spot procurement.

As shown in Table 4, the daily price volatility is higher during the winter period (especially January, February and March) compared to summer period. The range in price volatility is between 7.6% and 9.8% in the summer period to above 80.1% in the winter and as high as 108.5% in February. Over the past 5 years, a one standard deviation over the average February price is above 100%, because during this period there was higher volatility to the upside (higher prices compared to average) compared to the downside (lower prices compared to average) due to the Polar Vortex weather event in February of 2014.

Price volatility for monthly settles are also considered, as shown in

Table 5. Monthly settlement prices are more consistent month-to-month and less volatile compared to daily (spot) prices. A one standard deviation over the average monthly settle ranges from around 7.8% to 29% over the entire year, except for a February outlier of 67.3%. Given that the sensitivity analysis is meant to anticipate the impact of potentially higher spot and monthly purchases on the portfolio, only upside volatility is considered.

Table 4 – Daily Price Volatility, Dawn Day-Ahead Delivery, 2013-2018

Month	Average Settlement Price (CAD/GJ)	Price Volatility	Modeled Price (CAD/GJ)	Standard Deviation
JAN	\$4.5973	\$2.3258	\$6.9232	50.59%
FEB	\$6.3005	\$6.8340	\$13.1345	108.47%
MAR	\$4.5626	\$3.6534	\$8.2160	80.07%
APR	\$3.7247	\$0.9212	\$4.6458	24.73%
MAY	\$3.6255	\$0.8157	\$4.4411	22.50%
JUN	\$3.6876	\$0.6844	\$4.3720	18.56%
JUL	\$3.6309	\$0.3549	\$3.9858	9.77%
AUG	\$3.7025	\$0.3011	\$4.0036	8.13%
SEP	\$3.8005	\$0.2872	\$4.0877	7.56%
OCT	\$3.6495	\$0.3651	\$4.0146	10.00%
NOV	\$3.8225	\$0.7811	\$4.6035	20.43%
DEC	\$4.0353	\$0.9538	\$4.9891	23.64%

Table 5 – Monthly Price Volatility at Dawn, 2013-2018

Month	Average Settlement Price (CAD/GJ)	Price Volatility	Modeled Price (CAD/GJ)	Standard Deviation
JAN	\$4.3158	\$1.0662	\$5.3820	24.70%
FEB	\$4.6254	\$3.1110	\$7.7365	67.26%
MAR	\$3.7652	\$1.0919	\$4.8571	29.00%
APR	\$3.6428	\$0.8804	\$4.5232	24.17%
MAY	\$3.6543	\$0.7884	\$4.4427	21.57%
JUN	\$3.7107	\$0.6655	\$4.3762	17.94%
JUL	\$3.6190	\$0.3666	\$3.9856	10.13%
AUG	\$3.6903	\$0.3137	\$4.0040	8.50%
SEP	\$3.7845	\$0.2946	\$4.0792	7.79%
OCT	\$3.7926	\$0.3864	\$4.1790	10.19%
NOV	\$4.0465	\$0.6909	\$4.7374	17.07%
DEC	\$4.1610	\$0.8738	\$5.0348	21.00%

5.1.4. Average winter 2013-14 commodity prices

This scenario shocks each Supply Option by assuming that the same average natural gas commodity prices materialize as did during winter 2013-14 (“Polar Vortex”). The average settlement range for daily (spot) and monthly (prompt month) prices during the winter period are summarized in Table 6 and Table 7, respectively, below. These prices are applied to commodity procurement during the winter months in each Supply Option to simulate the portfolio cost impacts of a similar pricing event to the Polar Vortex.

Table 6 – Average Daily Dawn Prices, Winter 2013-2014

Month	Average Settlement Price (CAD/GJ)
NOV	\$3.8017
DEC	\$4.6635
JAN	\$7.3634
FEB	\$16.7058
MAR	\$9.9992

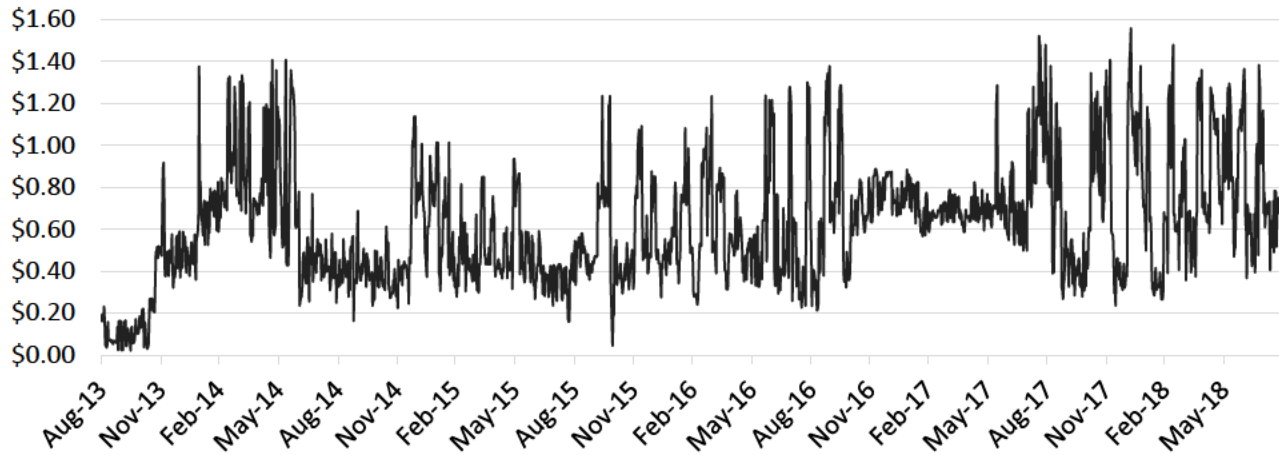
Table 7 – Average Monthly Dawn Prices, Winter 2013-2014

Month	Average Settlement Price (CAD/GJ)
NOV	\$3.80
DEC	\$4.66
JAN	\$5.79
FEB	\$9.36
MAR	\$5.68

5.1.5. Higher than normal storage prices

Because EPCOR relies on a market-based storage solution, storage prices offered at any time are tied to the winter-summer spread and can vary as market outlook changes. Figure 7 shows the historical winter-summer spread from 2013 to 2018. As such, the historical winter-summer spread over the last five years is used to calculate the percent difference from average, which is used to construct a standard normal distribution.

Figure 7 - Winter-Summer Historical Spread, 2013-2018 (CAD/GJ)



One standard deviation from the average spread over the five-year period is 46.13%. The impact of this impact on the historical average settlement price is shown in Table 8. It is important to note that although winter-summer spread is a good proxy for the price of storage, if the spread is higher than normal in the coming years – due to changes in market outlook at Dawn, for example – storage will go for a significant premium.

Table 8 – Storage Price Volatility, Dawn Winter-Summer Spread, 2013-2018

Average Winter-Summer Price Spread (CAD/GJ)	Price Volatility	Modeled Price (CAD/GJ)	Standard Deviation
\$0.6193	\$0.2857	\$0.9049	46.13%

5.2. Results

The following table summarizes the results of the sensitivity analysis, which shocks the three Supply Options based on five potential scenarios, either affecting base case demand or price forecasts. Note that cost of carrying related to storage contracts have not been incorporated into the analysis.

***Individual years can be found in tables 12-14**

Particulars	Sensitivity Analysis					
	Base Case	(a)	(b)	(c)	(d)	(e)
<u>Annual Baseload Supply Option</u>						
Commodity Cost (Baseload)	\$2,673,340	\$2,673,340	\$2,673,340	\$3,506,795	\$3,809,872	\$2,673,340
Commodity Cost (Spot Gas)	\$28,091	\$503,437	\$0	\$71,985	\$111,718	\$28,091
Transportation Fuel Cost	\$19,617	\$24,923	\$14,199	\$28,262	\$35,570	\$19,617
Storage Plan Cost	\$176,599	\$176,599	\$176,599	\$176,599	\$176,599	\$258,064
Injection/Withdrawal Cost	\$3,139	\$3,345	\$1,922	\$3,139	\$3,139	\$3,139
M17 LBA Charges	\$0	\$1,383	\$362,321	\$0	\$0	\$0
M17 Transportation Charges	\$929,508	\$929,508	\$929,508	\$929,508	\$929,508	\$929,508
Management Cost	\$105,000	\$105,000	\$105,000	\$105,000	\$105,000	\$105,000
Total Cost	\$3,935,293	\$4,417,535	\$4,262,890	\$4,821,288	\$5,171,407	\$4,016,758
Cost per GJ of Demand	\$4.5079	\$4.0793	\$6.4293	\$5.5228	\$5.9239	\$4.6012
Cost per m3 of Demand	\$17.54	\$15.87	\$25.01	\$21.48	\$23.04	\$17.90
% Deviation from Base Case		90.49%	142.62%	122.51%	131.41%	102.07%
<u>Seasonal Baseload Supply Option</u>						
Commodity Cost (Baseload)	\$2,834,160	\$2,834,160	\$2,834,160	\$3,842,121	\$4,473,175	\$2,834,160
Commodity Cost (Spot Gas)	\$34,132	\$455,482	\$0	\$76,317	\$112,643	\$34,132
Transportation Fuel Cost	\$19,617	\$24,923	\$14,199	\$28,262	\$35,570	\$19,617
Storage Plan Cost	\$105,178	\$105,178	\$105,178	\$105,178	\$105,178	\$153,697
Injection/Withdrawal Cost	\$1,898	\$1,928	\$1,180	\$1,898	\$1,898	\$1,898
M17 LBA Charges	\$7,250	\$1,059	\$2,477,351	\$7,250	\$7,250	\$7,250
M17 Transportation Charges	\$929,508	\$929,508	\$929,508	\$929,508	\$929,508	\$929,508
Management Cost	\$105,000	\$105,000	\$105,000	\$105,000	\$105,000	\$105,000
Total Cost	\$4,036,744	\$4,457,239	\$6,466,576	\$5,095,535	\$5,770,223	\$4,085,262
Cost per GJ of Demand	\$4.6241	\$4.1160	\$9.7529	\$5.8370	\$6.6098	\$4.6797
Cost per m3 of Demand	\$17.99	\$16.01	\$37.94	\$22.71	\$25.71	\$18.20
% Deviation from Base Case		89.01%	210.91%	126.23%	142.94%	101.20%
<u>Month-to-Month Supply Option</u>						
Commodity Cost (Baseload)	\$2,789,440	\$2,789,440	\$2,789,440	\$3,950,943	\$4,820,136	
Commodity Cost (Spot Gas)	\$50,707	\$759,744	\$0	\$117,312	\$175,386	
Transportation Fuel Cost	\$19,617	\$24,923	\$14,199	\$28,262	\$35,570	
Storage Plan Cost	\$0	\$0	\$0	\$0	\$0	
Injection/Withdrawal Cost	\$0	\$0	\$0	\$0	\$0	
M17 LBA Charges	\$0	\$949	\$5,255,241	\$0	\$0	
M17 Transportation Charges	\$929,508	\$929,508	\$929,508	\$929,508	\$929,508	
Management Cost	\$105,000	\$105,000	\$105,000	\$105,000	\$105,000	
Total Cost	\$3,894,273	\$4,609,565	\$9,093,389	\$5,131,026	\$6,065,600	
Cost per GJ of Demand	\$4.4609	\$4.2567	\$13.7146	\$5.8776	\$6.9482	
Cost per m3 of Demand	\$17.35	\$16.56	\$53.35	\$22.86	\$27.03	
% Deviation from Base Case		95.42%	307.44%	131.76%	155.76%	

Scenarios Modelled:

- (a)** Winter demand (Nov-Mar) is 30% above normal, based on 5-years of historical Heating Degree Day data at Goderich weather station.
- (b)** Winter demand (Nov-Mar) is 30% below normal, based on 5-years of historical Heating Degree Day data at Goderich weather station.
- (c)** Commodity price increases one standard deviation above normal, based on historical prompt month and next day Dawn prices
- (d)** Average monthly commodity price based on monthly (prompt month) and daily (spot) Dawn prices during Winter 2013-2014
- (e)** Cost of storage is one standard deviation above normal, based on 5-year historical price spread

Note:

% Deviation from Base Case is based on comparing cost-per-volume between the Base Case and modelled scenarios (Cost per GJ and Cost per m3)

The results of the sensitivity analysis show that the Annual Baseload Supply Option performs the best in terms of balancing reliability, cost-effectiveness, and flexibility of procurement when stressed for storage and commodity price uplift, and above and below normal winter demand.

On a total cost basis, the Seasonal Baseload Supply Option is the most costly at around \$4.037 million compared to the Annual Baseload Supply Option, which costs around \$3.935 million and the Month-to-Month Supply Option which costs around \$3.894 million total over the three year planning horizon. However, when endogenously shocked, the Month-to-Month Supply Option deviates from the cost under normal circumstances to a much higher degree than the Annual Baseload Supply Option (e.g. 89.01% deviation Scenario (a) and 210.91% deviation in Scenario (b), compared to 90.49% and 142.62% for the Annual Baseload Supply Option, respectively).

While the Seasonal Baseload Supply Option requires less spot procurement under normalized and colder than normal weather scenarios due to higher winter baseload volume procurement in the winter periods, higher baseload volume also means a higher likelihood of building positive LBA balances in scenarios where winter demand is lower than expected. This is further compounded by lower injection rights due to lower optimized storage procurement, reducing EPCOR's ability to reduce a positive LBA imbalance through the use of additional injection rights and leading to a high modeled LBA cost of \$2.477 million in the lower than normal winter demand Scenario (b).

The reduced ability to reduce a positive LBA imbalance is also the driver for higher expected LBA cost for the Month-to-Month Supply Option, driving the modeled M17 LBA charges to \$5,255 million (\$13.71 per GJ) under colder than normal weather. This is the only scenario where EPCOR falls into a penalty position under the M17 contract.

Higher contracted storage under the Annual Baseload Supply Option is able to reduce the impact of more volatile commodity prices under Scenarios (c) and (d), translating to an increased in the volumetric cost to \$5.52 per GJ and \$5.92 per GJ respectively (22.51% and 31.41% higher compared to the Base Case), compared to the Seasonal Baseload Supply Option (\$5.84 per GJ under Scenario (c) – a 26.23% increase – and \$6.61 per GJ under Scenario (d) – a 42.94% increase). This is due to relatively higher summer procurement volume – when prices tend to be lower and less volatile – and lower winter procurement volume – when prices tend to be higher and more volatile. The Month-to-Month Supply Option was the most ineffective in controlling cost volatility under these two scenarios, with prices rising to \$5.88 per GJ (a 31.76% increase) and \$6.95 per GJ (55.76% increase), respectively.

A more flexible Supply Option (Month-to-Month, Seasonal) would require less storage assets, but reduce cost effectiveness if insufficient withdrawal rights leads to higher likelihood of potentially expensive spot gas procurement; whereas the Annual Baseload Supply Option requires a higher maximum storage balance to match monthly procurement volume and demand, but increases cost effectiveness given

higher withdrawal rights and reduced likelihood of spot gas purchases when shocks are applied to key model parameters.

Flexibility is also a consideration when dealing with daily balancing requirements to ensure supply matches actual demand while also minimizing imbalance charges under the M17 contract. Higher injection right also gives EPCOR an additional tool to reduce LBA imbalances, which can lead to high costs to the rate payers if daily and cumulative imbalances reach a high level. Higher contracted storage is expected to have minor impact on costs, with a one standard-deviation rise in storage cost expected to increase volumetric cost by 9.3 cents per GJ, a 2.07% rise compared to the Base Case. This is because storage costs are only expected to make up under 5% of EPCOR's total portfolio cost under the Annual Baseload Supply Option – swings in storage costs are expected to have relatively small impact on EPCOR's overall portfolio costs, which are dominated by commodity cost (68% under the Base Case) and Transportation Costs (23.6% under the Base Case). As a result, the Annual Baseload Supply Option that is able to manage swings in commodity costs and reduce the reliance on spot procurement was the best in managing swings in portfolio costs under different demand and price shock scenarios.

5.3. Recommendation

The Annual Baseload Supply Option provides a balanced approach to the portfolio which weighs the principles of reliability and security of supply against cost-effectiveness and ensures enough flexibility to respond to unexpected changes in demand, spot prices, or the cost of storage. The Annual Baseload Supply Option is expected to have lower price volatility and increased rate predictability, due to procurement volume spread out evenly throughout the calendar year, weighing heavier in summer periods when prices volatility is lower. Higher injection and withdrawal rights (due to higher storage requirements) potentially decreases the need for spot gas procurement for daily balancing purposes. This option has a lower commodity cost with higher storage cost compared to the Month-to-Month Procurement option, resulting in a slightly lower cost per volume delivered.

EPCOR determined that the level of price volatility that arose when the Annual Baseload Supply Option was shocked is acceptable for consumers, compared to the other procurement strategies, which may be lower cost under normal circumstances, but to the detriment of flexibility of supply and increases price risks to customers, especially in events of higher commodity price, or lower than expected demand.

The Annual Baseload Supply Option allows EPCOR to manage shifting demand requirements throughout the year and provides operational flexibility through service attributes and contract parameters. The strategy also allows for flexibility in both cost containment and reliability of supply through utilization and optimization of the LBA provision within the M17 contracts for daily balancing purposes.

6. Gas Supply Plan

Based on the results of the options analysis and subsequent recommendation, the following is a summary of the EPCOR 2019 - 2022 Supply Plan.

6.1. Baseload Commodity Procurement

Delivery Point: Dawn

Price: indexed at ICE NGX Union Dawn Day Ahead Index

Volume (GJ/Day):

2019: 580 GJ/d

2020: 1,120 GJ/d

2021: 1,366 GJ/d

6.2. Transportation Capacity

Receipt Point: Dawn

Delivery Point: Dornoch Interconnection Point

Price: Rate M17

Contract Demand: 138,200 m³ per day (for General Service Customers)

Daily Balancing: Limited Balancing Agreement

6.3. Storage Capacity

Storage Location: Dawn

Maximum Storage Balance (MSB) (GJs):

2019: 48,860 GJs

2020: 82,305 GJs

2021: 129,476 GJs

Firm Injection Right: 0.75% of MSB at or below 75% full, 0.50% of MSB above 75% full

Firm Withdrawal Right: 2.00% of MSB at or above 25% full, 0.80% of MSB below 25% full

Cost: Market-based

7. Gas Supply Plan Execution

7.1. Procurement Processes and Policies

To provide safe, reliable, and cost-effective distribution of natural gas to its customers given geographical constraints and a small customer base, EPCOR will rely on the flexibility of its procurement process combined with its storage contracts.

Short term forecasts are reviewed on a bi-weekly basis in the winter, based on expected weather changes in the short term (15 days) and medium term (near month / rest of season) forecasts, and monthly in the summer based on expected changes in the demand profile (i.e. due to changes in demand growth assumptions). Short term forecasts will be used to determine whether additional procurement actions are required – for example, changes to storage injection and withdrawal patterns, forecasting Daily and Cumulative Operating Imbalances under the M17 LBA, and spot gas procurement requirements.

Leading into each month, the demand estimates are reviewed evaluated based on the level of demand that has been experienced, the level of supply that has been procured, and other factors influencing short and medium-term demand. If additional supply is required for the upcoming month (i.e. if demand is expected to exceed procured volume plus withdrawal limits), additional volume will be procured on a through a Request for Proposal process, electronic trading systems (e.g. NGX) or directly from approved suppliers at least 5 business days before the end of the month. If procurement volume is expected to consistently exceed demand, changes to nomination and storage strategy will be reviewed to minimize the costs associated with a high cumulative M17 LBA imbalance.

Further reviews will be taken if storage position is expected to be 75% above or 25% below maximum storage balance in the next month as Union's storage contract limits firm injection and withdrawal volumes at these levels. Outcomes of these reviews will be: potential changes to daily balancing strategies, and potential changes to future procurement volume.

Leading into each April, the annual base procurement volume for the upcoming Gas Year will be re-evaluated on a customer class basis, based on the level of expected demand for the coming year, which is a function of expected demand growth rate. Storage requirements will also be re-evaluated at this time, based on updated demand forecasts as EPCOR actual consumption data supplement forecasting techniques.

7.2. Limited Balancing Agreement Triggers

On a daily basis, EPCOR will review supply-demand imbalances. Imbalances will be managed the following ways:

- In the next business day, EPCOR will inject or withdrawal additional gas from storage to cover the previous day's imbalance, in order to bring the daily and cumulative imbalance towards zero. Note that Friday, Saturday, and Sundays are treated as a single day with respect to balancing under the LBA provision.

- If firm withdrawal rights are already fully utilized to meet the day's expected demand, EPCOR will employ the LBA imbalance to cover the remaining difference. EPCOR will then procure spot gas the next day to bring the imbalance toward zero.
- Similarly, if supply in excess to the day's expected demand is expected to exceed injection rights, EPCOR will bank the excess into the LBA imbalance, until EPCOR can nominate the excess volume out of the LBA imbalance, through excess demand or the use of excess storage injection rights.

7.3. Storage-Based Triggers

Storage-based procurement adjustment targets will match terms provided in Union's contract. EPCOR will establish storage targets to maintain maximum deliverability from storage until late March in order to meet demand during the five Peak Days assumed to occur during winter.

During the end of winter period, EPCOR will review the existing annual procurement volume and determine whether it should be increased in addition to forecasted summer demand in order to build storage volumes up and ensure the storage position heading into November 1 is sufficient to provide reliable supply to customers up to March 31, given an expectation of five Peak Days. Procurement volumes will also be reviewed prior to April as well as prior to September, as two additional checkpoints.

The variance between supply and demand volume is injected into or withdrawal from storage. If the difference is larger than the firm withdrawal rights, additional gas required to meet demand still in excess after storage withdrawal will be provided by Union under the LBA provision in the M17, which will be trued up as soon as possible through additional withdrawal or spot gas procurement.

7.4. Evaluation of Procurement Process and Policies

The procurement processes and policies are evaluated on the following criteria:

- **Reliability of supply:** Procurement processes for commodity are evaluated on whether they allow the adjustment of procurement volumes to match expected demand, and whether processes and policies may hinder EPCOR's ability to procure supply in a timely manner. Procurement process and policy also allow for the procurement of additional gas in times when demand exceeds supply.
- **Rate Predictability:** Policies will adhere to the Supply Plan as closely as possible to ensure commodity and storage assets are procured based on a framework that has been established to result in natural gas supply at least-cost to consumers.
- **Flexibility:** Policies are flexible to ensure changes in procurement volumes and potentially strategy is adapted to in a timely manner when required, and that procurement processes and policy do not significantly hinder the flexibility of other aspects of the plan.
- **Continuous Improvement:** EPCOR will review and improve on procurement processes and policies on an annual basis.

7.5. Risk Mitigation Strategy

A key aspect of the Supply Plan execution is the existence of risk mitigation strategies.

7.5.1. Description

EPCOR employs a number of risk mitigation strategies in the development of its Supply Plan. The level of risk in EPCOR's Supply Plan related to factors other than changes in demand (e.g. price volatility), are largely identified through a rigorous sensitivity analysis. Risks are mitigated through the development of protocols that are followed if extreme demand or pricing events occur. A Supply Plan that is reliable and flexible will – from a cost-containment perspective – withstand extreme weather conditions, demand fluctuations, market volatility, and infrastructure disruptions.

EPCOR will use an integrated portfolio tracking model, developed by Blackstone to evaluate supply volume to match expected demand, manage storage and M17 LBA balances, conduct scenario analyses, and forecast budgets. The tool will help EPCOR maintain reliability of supply as well as enable flexibility in its procurement approach.

Advisory services that will be provided daily to inform EPCOR of the following to inform short term changes to procurement include:

- Local historical and forecast weather information that will impact short-term (next month and rest of season) demand;
- Report on historical storage position and forecast demand and storage position in the short-term (next month and rest of season), based on weather information and changes in growth projections;
- Report on historical Dawn index price and price forecast in the short-term (next month and rest of season); and
- Report on any regulatory or market development that may impact supply reliability or change EPCOR's ability to meet policy objectives.

7.5.2. Evaluation

The following criteria are used to evaluate risk mitigation strategies:

- **Reliability of supply:** Risk mitigation strategies are evaluated on whether they will ensure or improve reliability of supply, especially during the winter period. Cost trade-offs are reviewed to ensure that costs associated with procurement strategies are justified. For example, examining the cost of contracting additional storage against improvement in deliverability, especially during winter. Strategy evaluations are made on a whole-portfolio level. Risk mitigation strategies are also evaluated on whether they have significant negative impact to reliability.

- ***Cost Effectiveness:*** Risk mitigation strategies are evaluated on whether they would reduce volatility in commodity costs on an annual basis. Incurring additional costs in order to reduce cost volatility may be justified.
- ***Flexibility:*** Risk mitigation strategies are evaluated on how flexible they are on changing conditions (e.g. prices, demand), and whether they significantly impact flexibility in other areas of the Supply Plan.
- ***Continuous Improvement:*** EPCOR will review risk mitigation tools and strategies on an annual basis and adjust and improve strategies and the use of available tools (e.g. storage assets, procurement timing and strategies, the M17 LBA) based on the findings of the annual review.

7.6. Additional Notes on Supply Plan Execution

EPCOR will contract the Blackstone for the execution of daily nomination and balancing, storage management, supply planning advisory, and commodity procurement.

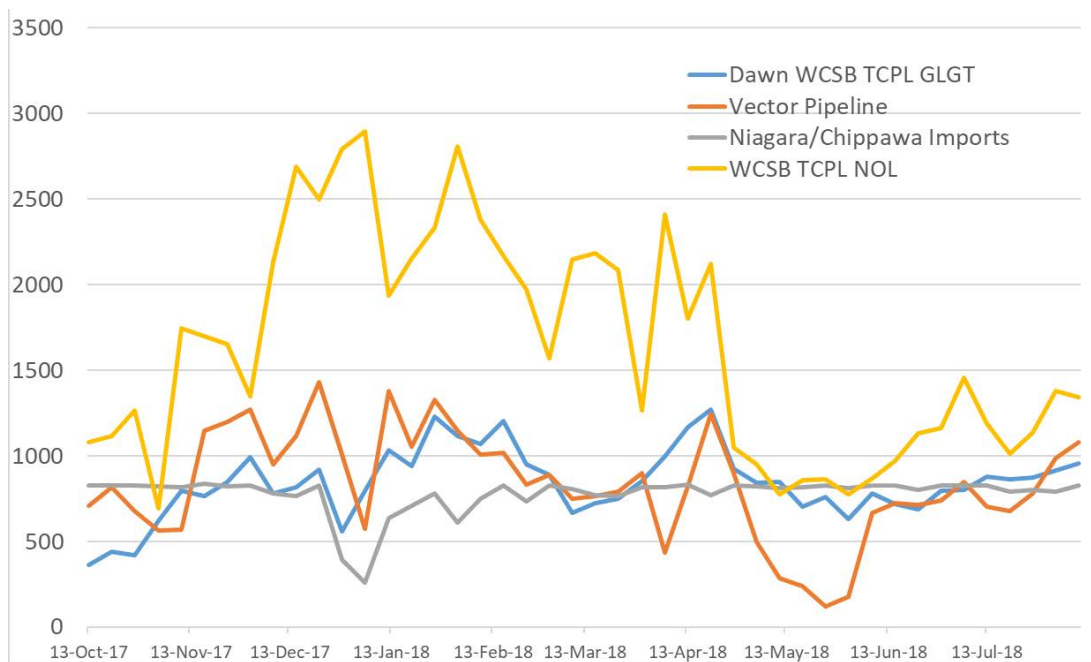
8. Current and Future Market Trends Analysis

As an element of the risk mitigation strategy, the following overview of current and future trends is intended to inform EPCOR of any changes in natural gas market fundamentals which have the potential to impact the Utility’s ability to execute the Supply Plan.

Natural gas supply to the Ontario market is expected to remain strong over the next few years. Natural gas primarily flows into the Dawn Hub (“Dawn”) from the Western Canada Sedimentary Basin (WCSB) and the Marcellus and Utica shale plays in the Appalachian region of the United States (U.S.).

Historically, the WCSB has been the major gas supplier to markets in Eastern Canada, but the emergence and rapid development of Appalachian shale supply has significantly increased U.S. supply into Eastern Canada, displacing WCSB gas, and the trend is expected to continue. The rise in production in the Appalachian region has significantly changed the supply of natural gas to Ontario and the flow of natural gas on the TransCanada Pile Line (TCPL) system to Eastern Canada. Until 2012, the WCSB accounted for nearly 100% of the supply to the Eastern Canada markets through the TCPL and Alliance/Vector pipelines and has been a large gas exporter to the U.S. Northeast. The current share of WCSB supply in Eastern Canada varies between the winter and summer and is approximately 65% and 75% (Figure 8).

Figure 8 – Major Supply Sources of Ontario Natural Gas (MMcf/day)

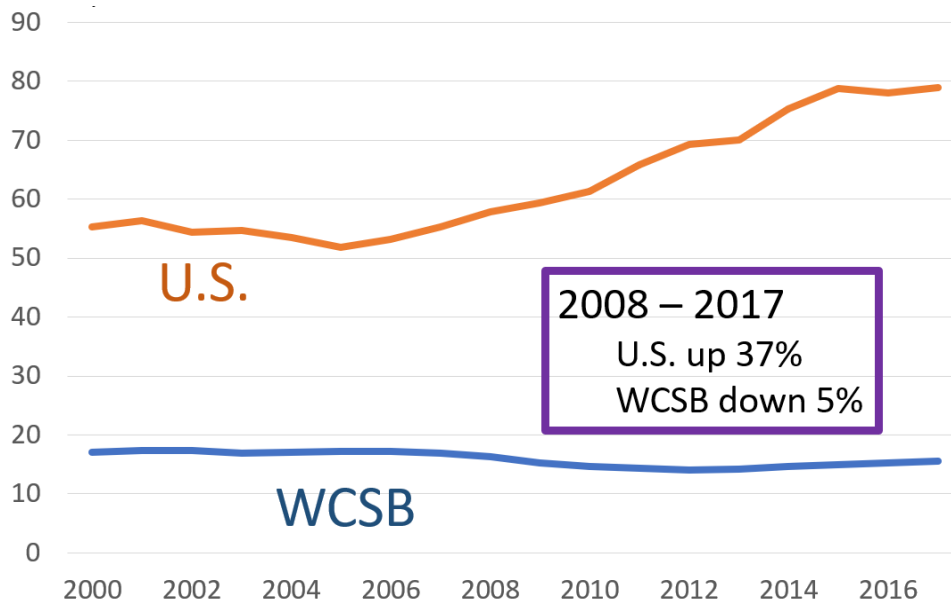


Source: EIA, Analysis by Blackstone

Production in the Marcellus and Utica basins is expected to reach 23 Billion Cubic Feet (Bcf) per day by the end of 2018, up 18 Bcf per day over a 10-year period production. The Appalachian region has been the key driver of the 37% increase in U.S. dry natural gas production over the last 10 years, in contrast to WCSB production which has decline by 5 % over the same period (Figure 9). Currently, the growth of natural gas production in the Marcellus and Utica basins is constrained by the lack of available takeaway pipeline capacity to move it to new markets.

WCBS supply is expected to decline going forward, with the large decrease in drilling activities due to the sustained low natural prices gas prices. However, supply from WCSB into Eastern Canada is not expected to decline further as WCSB producers are increasingly looking at market outside the province of Alberta. The competitiveness of the Appalachian supply has led to large de-contracting of transportation on the TransCanada Pile Line (TCPL) of supply from the WCSB to the Eastern markets and to the U.S. Northeast. The current supply excess in the WCSB has pushed down prices significantly over the last three years and has motivated Alberta producers to contract for large volumes of transportation capacity on the TCPL mainline to Dawn. For example, contracts for 10-Year Long Term Fixed Price for 1.3 Bcf/day of transport will come into effective November 1, 2018 and more recently, Alberta producers have signed for an incremental 0.9 Bcf/day of capacity at Empress effective November 2021.

Figure 9 – Marketable Natural Gas Production (Bcf/day)

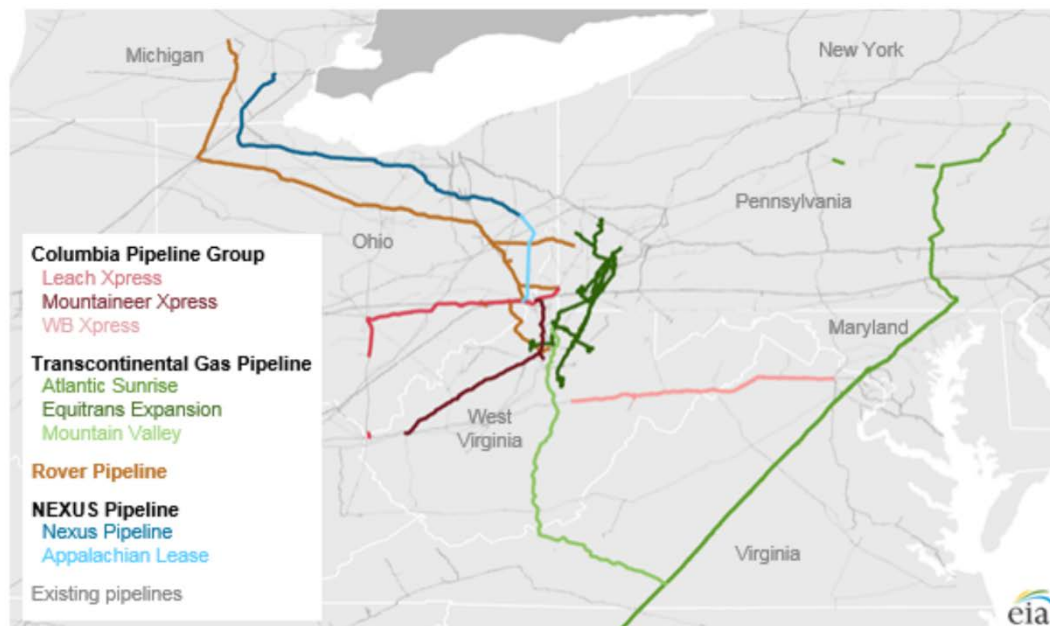


Source: EIA, Canadian Association of Petroleum Producers

Driven by its robust supply economics and proximity to the U.S. Northeast and Eastern Canadian markets, Appalachian supply now fulfills most of the gas demand in the U.S. Northeast, has replaced most of the WCSB supply in that region, and in the last few years has made large inroads in Eastern Canada. The latter refers to the reversal of the Niagara/Chippewa exports points in 2012 and 2015 respectively. Last

year's expansion of the Vector pipeline (0.45 Bcf/day of incremental summer capacity) at Dawn has further increased supply into Eastern Canada and added additional downward pressure on the Dawn basis. Proposed and under-construction pipeline projects such as Rover and Nexus (Figure 10), will continue to increase competitive pressures on WCSB volumes serving eastern markets via the Mainline.

Figure 10 - Existing and Planned Pipelines in the U.S. Northeast



Source: EIA

Phase 2 of the Rover pipeline came online in mid-2018, flowing 3.25 Bcf/day of new capacity into Midwestern markets, including the Dawn hub. The NEXUS Pipeline is expected to come online in Q3 2019 and add 1.5 Bcf/day. The caveat to these pipeline developments is that Vector pipeline capacity is not increasing. The last expansion on Vector in 2017, pushed winter and summer capacity to 1.75 Bcf per day. Rover and Nexus will add incremental supply from the U.S. that will compete with existing volumes on Vector and have the potential to add further downward pressure on the Dawn-NYMEX basis. The incremental supply will also increase competitive pressures on the WCBS volumes serving eastern markets via the Mainline.

The potential for the reversal of the Iroquois pipeline exists due to competition with Marcellus volumes in U.S. northeast markets but this reversal is likely several years away. Firm contracted volumes into Iroquois from Canada have declined to 0.5 Bcf/day, the physical capability into Iroquois is 1.2 Bcf/day. TCPL recently issued an open season that offers a steep discount on the approved toll from Empress to North Bay and potential shippers will have the opportunity to take their gas to downstream markets in Eastern Canada, such as Iroquois. If successful, the open season would likely push out further the potential for a reversal of Iroquois. Marcellus is the largest producing field in the world, the Iroquois pipeline is depreciated, and the tolls would be quite competitive to move supply into Canada. As approvals of pipeline expansions in the U.S. often face resistance and delays, meaning the possible reversal is several years away. In the future, TCPL could offer a more competitive open season that will reduce the likelihood of Iroquois reversal. On the U.S. side, FERC has also recently announced that the Northern Access Pipeline on National Fuel may proceed and could add near 300 Mmcf/day of new import capacity at Chippewa.

Given the above market outlook and future trends analysis, there are no major changes expected in the North American natural gas market over the next three years that will shift the fundamental supply and demand dynamics to a degree that will impact the viability of the Supply Plan and its ability to deliver on the guiding principles of cost-effectiveness and reliability and security of supply.

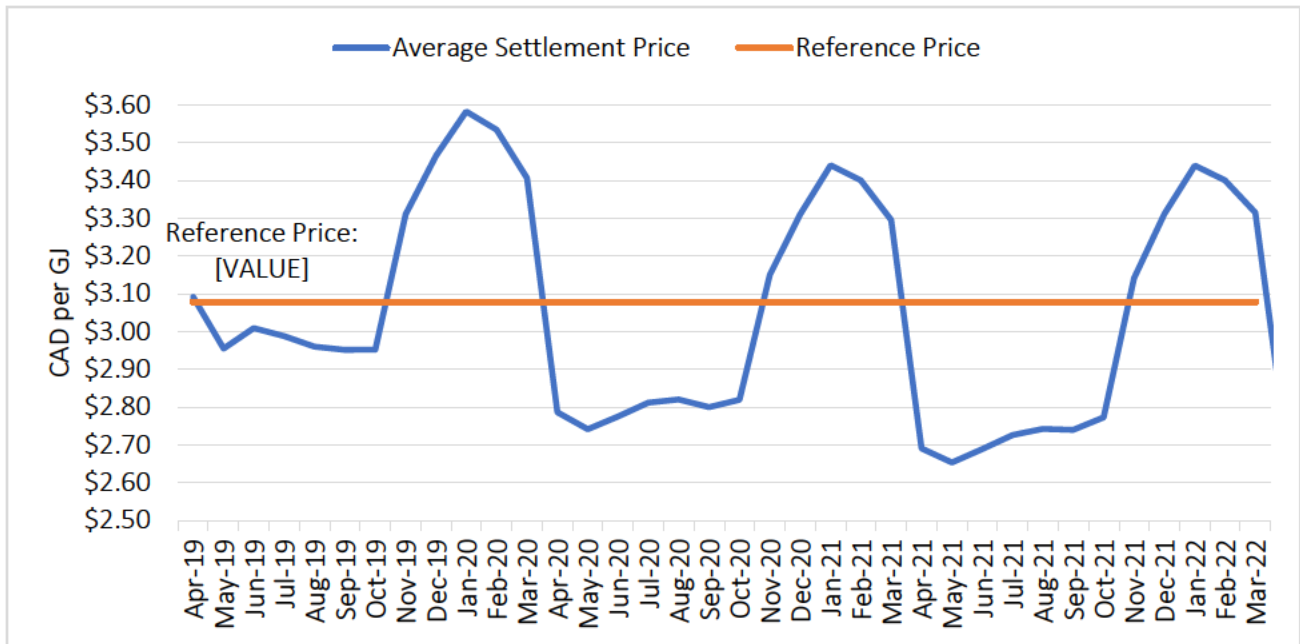
9. Performance Metrics

The Supply Plan will be assessed on three key performance metrics, Reference Price, Cost of Servicing the Portfolio, Rate Predictability, and Flexibility. Once the Supply Plan is executed, EPCOR's portfolio will be reviewed and will be compared to these performance metrics to determine how it has met the criteria set out in the Framework.

9.1. Reference Price

The average cost of gas purchased at Dawn for the horizon of the Supply Plan (36 months starting April 2019), will be used as a performance metric to compare how EPCOR's Supply Plan performs compared to expectations. The reference price is determined by applying a forward Dawn basis differential to the 36-month NYMEX futures prices and applying a foreign exchange rate over 21 trading days. These monthly prices are then weighted by the volume EPCOR plans to purchase in each of the 36 months. The result is an average cost of is \$3.0784 CAD per GJ, representing a Reference Price for the 36-month forward market price at Dawn (Figure 11). Settlement price history for this analysis was taken from NGX during the period of June 25 to August 14, 2018 (21 trading days). Prices are outlined in Appendix E and are used in the Base Case of each Supply Option.

Figure 11 - Average Dawn Future Settlements and Reference Price, April 2019 to March 2022



Source: NGX; Blackstone calculations

9.2. Cost of Servicing the Portfolio

Compares the cost of servicing the portfolio on a consumption basis. The analysis breaks down costs by commodity, fuel, storage, transportation, and management costs and compares these metrics on an annual basis. Assessing the costs on the basis of volume consumed is a judicious approach, as incremental costs may be justified if the result is a lower volumetric cost of service through economies of scale.

9.3. Rate Predictability

Rate predictability takes into account the amount of natural gas that is procured on the spot market. Spot gas purchases for daily balancing purposes can increase cost volatility, and thus decrease rate predictability, as spot prices are more volatile than index prices, which are constructed based on the weighted average of all transactions in a given month. Rate predictability will mainly be measured on the variances in commodity costs on a month to month basis over the cost of each Gas Year.

9.4. Flexibility

The Supply Options are assessed based on the ability of EPCOR to manage shifting demand requirements throughout the year and as the utility's customer demand profile grows by adapting the commodity and storage procurement strategies, without compromising on cost. Flexibility is mainly a qualitative metric, and will be evaluated on how EPCOR identifies additional opportunities in introducing further flexibility to

the Supply Plan, aspects of the supply plan execution that hinders flexibility, and other areas of improvement.

9.5. Diversity of Supply

Diversity of Supply is not included as a performance metric for several reasons. While the OEB Framework requires EPCOR to provide a description of diversity in supply and transportation assets, EPCOR plans to procure gas only at Dawn (landed and indexed) over the Supply Plan horizon and does not plan to procure any transportation assets at this time, given the small volume over the period of the three-year plan. In recent years the liquidity and diversity of supply at Dawn has increased, as described in Section 9, making Dawn is one of the most liquid points in North America – with expanding supply access to Marcellus/Utica supply basin – which mitigates price and volume concerns.

Further, there are different pricing structures available at Dawn, for example, the CGPR 5A and CGPR 7A indices, which are prices based the weighted available of the spot and prompt settles at AECO, respectively, plus a fixed cost portion. On a month-to-month basis, these pricing options generally come very close to the landed Dawn price (the ICE NGX Union Dawn Day Ahead Index.). However, the AECO-based indices will introduce additional price uncertainty and therefore is not incorporated into the plan. EPCOR will price supply at the ICE NGX Union Dawn Day Ahead Index.

On the diversity of transportation, given the newness of the service area, customer demand is expected to be low (relative to Union and Enbridge) within the first three years of EPCORs service, making the cost of contracting for short and long-haul transportation assets upstream of Dawn relatively high and logistically difficult. The geographic nature of the EPCOR system also limits the practical ability to access a range of hubs and basins. EPCOR does not have access to any significant local natural gas production within or proximate to its franchise area.

10. Continuous Improvement Strategies

Continuous improvement to the supply planning process that is undertaken by EPCOR is an important element of the transparency objective of the OEB framework. EPCOR continues to proactively evaluate new supply and transportation options. Unchanged, however, is EPCOR's application of the gas supply planning principles and the requirement to ensure secure, reliable supplies to serve its customers at prudently incurred costs.

EPCOR will also continue to proactively identify new opportunities in its supply, transportation, storage portfolio to meet its gas supply obligations while meeting the OEB Framework Assessment criteria. EPCOR will also continue to review and improve the information it reviews for market outlook and forecasting purposes. As EPCOR begins flowing gas in November 2019 and actual data is collected related to demand, the Supply Plan and procurement strategies will be evaluated and re-worked based on how actual consumption compares to previously forecasted load and load growth.

11. Link to Other Applications

Variances in the actual cost of the natural gas portfolio compared to what is presented in Section 5.2 will be updated annually, captured in the cost of gas deferral accounts and disposed of as part of the QRAM process.

As EPCOR is not engaged in any long-term contracts and Cap and Trade is no longer in effect in the province, the Supply Plan does not interact with these plans or programs. The impact of the Supply Plan on other Rate Applications and Leave to Construct filings, will be considered at the time of filing.

12. Appendices

12.1. Appendix A: Biography

KENNETH POON – DIRECTOR OF ANALYTICS

In his role as Blackstone’s Director of Analytics, Ken handles energy analytics, market intelligence and coordinates policy research.

Ken recently worked with a natural gas utility to complete a Cap and Trade Compliance Plan in accordance with Ontario Energy Board guidelines and standards. He also manages the natural gas portfolio and market outlook for a natural gas utility, including building custom portfolio and storage forecasting models. Further, Ken has been advising on regulatory changes and their impact on various energy markets, such as the changes in the Ontario Cap and Trade program and the upcoming Federal carbon pricing program and the Clean Fuel Standards.

His research and analytical capability is formidable, and he has frequently contributed to Yahoo Finance and other media outlets.

Before joining Blackstone, Ken was Associate Director at the Institute for the Advanced Study of Food and Agricultural Policy, which serves to consult on a number of economic and policy issues for various public and private stakeholders in the agri-food sector.

Ken previously worked as Research Associate at the Department of Food, Agricultural, and Resource Economics at the University of Guelph, where his research focused on economic and environmental impact of agri-food policies. Ken’s research examined the impact of policy and market shocks on agricultural commodity markets; he coauthored multiple research papers with a specific focus on policy analysis. Over his career, Ken has worked with and provided consulting services for a number of NGOs and think tanks focused on business sustainability. He received his Masters of Science in Agricultural Economics from the University of Guelph.

DAMIEN DUFOUR, VICE PRESIDENT – RESEARCH & COMMODITIES STRATEGY

Damien has been involved in the energy space for over 25 years. He is an expert in global natural gas markets and has a comprehensive understanding of the entire value chain of the industry.

Damien's expertise includes natural gas trading, analysis, project development and negotiation of long-term supply agreements on behalf of clients. His career experience includes:

- Led a team on behalf of a U.S. Merchant Bank and Trading entity that provided research, analysis and recommendations with respect to the natural gas regulatory environment. The assignment focused on the risks and opportunities associated with Canadian natural gas industry's regulatory framework.
- Assisted in securing Long term supply aggregation for Asian investors in Liquefied Natural Gas project on the West Coast of British Columbia
- Conducted a Natural Gas Supply Outlook study to support long term natural gas export license for a Liquefied Natural Gas export project on the East Coast of Canada
- Representative for Canadian Merchant Bank on Interprovincial pipeline Tolls and Task Force committee
- Representation on B.C. Natural Gas Pipeline Subcommittee to improve transportation services while at Spectra Energy Corp.
- Representation on Shippers Committee on Interprovincial Pipeline for TransCanada Pipeline Limited

Damien holds a BA in Business Administration from Laval University and has completed Parts I and II of the Canadian Futures Examinations. He is well versed in all aspects of the natural gas futures markets as it relates to short-term and long-term hedging strategies, basis strategies, and risk mitigation through managing risk and opportunity with North America's Transportation network.

EMMA FERNER – ANALYST

Emma is a research economist who brings extensive energy policy knowledge and analytical capabilities to the Blackstone team. Emma is experienced in modelling, forecasting and monitoring trends in the natural gas, electricity and carbon markets as well as understanding regulatory developments and their impact on market fundamentals. She is the primary author of Blackstone's weekly market intelligence brief and hosts Blackstone's monthly Client market update webinar.

Previously at the Ontario Ministry of Energy, she's worked on renewable energy policy, rate impact analyses, and electricity market reform, specifically as it relates to the IESO's Market Renewal initiative. Emma holds a Bachelor of Arts Honours degree in Economics from Queen's University and a Master's of Science in Food, Agricultural, and Resource Economics from the University of Guelph.

DAVID ALICANDRI, VP – OPERATIONS & PORTFOLIO MANAGEMENT

David has over 15 years of experience in the energy markets, including 10 with Blackstone. He earned his Honours in Bachelor of Business Management from York University. David's main responsibility is to manage clients' day-to-day needs as they relate to supplier relationships and utility obligations. He oversees a team that is in constant contact with industry suppliers, transportation companies and utilities. He assesses market pricing movement for dozens of delivery points across North America on a daily basis and manages clients' transportation and storage assets to help them minimize costs and exposure.

David's operational savvy is unmatched in the industry. He has developed systems and processes that help his team analyze market information from various platforms including NGX and the CME for natural gas and IESO, MISO, NYISO and PJM markets for electricity. He assesses market information with prices received from supplier trading desks to determine the best procurement and transaction approach as it relates to client needs.

David's industry knowledge provides a significant benefit to Blackstone's clients in terms of matching their needs with the appropriate supplier or counter party. He brings additional expertise with utility systems and contract structures including Enbridge's EnTRAC, Union Gas' Unionline System, Direct Purchase, Agent Billing and Collection (ABC), and Large Volume Contract arrangements. David has worked with these systems daily for the past decade and, along with his team, ensures clients have met utility obligations and are accessing the best rate plans available to help minimize costs.

David is also a regular guest speaker at utility symposiums, both advising their large client base as well as the utilities themselves on market dynamics and trends.

David's responsibilities include:

- Overall management of the North American commodities portfolio
- Oversee operational functions with respect to supply, transportation and utility requirements including assessment of risks and opportunities
- Supplier sourcing, contract management
- Price discovery on behalf of the agencies
- Ensure integrity and consistency of internal operational functions including reporting, data entry and account management

RYAN DUFFY - PRESIDENT & CEO

Ryan Duffy is the President & CEO of Blackstone Energy Services, As the Founder, Mr. Duffy set out a vision for creating an energy management company that delivers purposeful change for its clients by "creating good energy" - guiding large businesses, municipalities and hospitals on their journey to net-zero consumption.

Ryan is highly active within the energy community. Recently he has been dedicating time to the Steering Committee for the EY Blockchain Energy Trading Working Group and the XPRIZE Innovation Board. He

also sits on the board for SusGlobal Energy [SUSG] and is a member of the Canadian Healthcare Engineering Society and the Royal Canadian Military Institute.

In 2017, Ryan was named “Smartpreneur of the Year” at the Powering Prosperity Awards, an honour that recognizes exceptional entrepreneurial leadership and vision in the field of sustainable energy.

12.2. Appendix B: Detailed Demand Forecast

Breakdown of Monthly Demand Forecast, By Customer Segment (m³)

Month	Residential	Commercial	Agricultural - General	Agricultural - Large Farms and Grain Dryers	Total
Nov-19	139,863	74,587	-	111,097	325,548
Dec-19	261,138	112,409	-	47,134	420,680
Jan-20	621,027	281,246	-	6,863	909,136
Feb-20	650,062	250,892	-	-	900,955
Mar-20	535,535	216,423	-	-	751,958
Apr-20	322,612	116,443	-	-	439,054
May-20	183,889	56,764	-	-	240,652
Jun-20	103,236	14,062	-	5,211	122,509
Jul-20	77,427	25,552	-	6,122	109,101
Aug-20	74,201	28,468	-	23,241	125,910
Sep-20	77,427	33,098	-	34,221	144,745
Oct-20	170,984	69,797	-	110,072	350,853
Nov-20	254,863	157,601	-	114,569	527,033
Dec-20	475,852	237,516	-	48,607	761,975
Jan-21	1,088,178	548,266	-	15,781	1,652,225
Feb-21	1,139,054	489,093	-	-	1,628,147
Mar-21	938,377	421,897	-	-	1,360,274
Apr-21	565,287	226,995	-	-	792,283
May-21	322,214	110,656	-	-	432,870
Jun-21	180,892	27,413	-	11,983	220,288
Jul-21	135,669	49,812	-	14,077	199,558
Aug-21	130,016	55,495	-	53,446	238,958
Sep-21	135,669	64,522	-	78,695	278,886
Oct-21	299,602	136,063	-	253,125	688,791
Nov-21	446,577	307,229	-	263,466	1,017,273
Dec-21	833,799	463,017	-	111,778	1,408,594
Jan-22	1,380,205	761,066	446	28,152	2,169,870
Feb-22	1,444,734	678,927	398	-	2,124,059
Mar-22	1,190,203	585,650	343	-	1,776,196

12.3. Appendix C: Detailed Commodity Procurement Volumes Under Each Supply Option

Table 9 - Procurement Volumes for the Annual Baseload and Seasonal Baseload Supply Option, By Year

	Annual	Seasonal
<u>2019</u>		
Baseload Procurement (GJ/day)	499	270
Baseload Top Up (GJ/day)	81	85
Winter Procurement (GJ/day)	-	466
Spot Gas Purchase (GJ)	1,198	1,178
<u>2020</u>		
Baseload Procurement (GJ/day)	907	502
Baseload Top Up (GJ/day)	213	105
Winter Procurement (GJ/day)	-	873
Spot Gas Purchase (GJ)	3,117	2,384
<u>2021</u>		
Baseload Procurement (GJ/day)	1,281	689
Baseload Top Up (GJ/day)	85	-
Winter Procurement (GJ/day)	-	1,574
Spot Gas Purchase (GJ)	3,556	3,831

Table 10 - Procurement Volumes for the Month-to-Month Supply Option, By Month and Year

	2019		2020		2021		2022	
	Month-to-Month Gas (GJ/d)	Spot Gas (GJs)	Month-to-Month Gas (GJ/d)	Spot Gas (GJs)	Month-to-Month Gas (GJ/d)	Spot Gas (GJs)	Month-to-Month Gas (GJ/d)	Spot Gas (GJs)
Jan	-	-	1,209	1,172	1,707	835	1,339	2,625
Feb	-	-	944	472	1,027	0	706	2,856
Mar	-	-	569	0	543	2	375	1,081
Apr	-	-	302	-	286	0	-	-
May	-	-	159	-	250	-	-	-
Jun	-	-	137	-	300	-	-	-
Jul	-	-	158	-	362	-	-	-
Aug	-	-	188	-	864	-	-	-
Sep	-	-	440	-	1,319	-	-	-
Oct	-	-	683	-	1,768	-	-	-
Nov	422	3	956	-	2,723	2,625	-	-
Dec	528	0	2,073	1,979	2,951	2,856	-	-
TOTAL	3,041	3	7,818	3,624	14,100	6,319	4,398	6,562

12.4. Appendix D: Method for Optimization of Maximum Storage Balance

The modeled storage balance for each Supply Option is shown in the Figures below, based on the procurement volumes and maximum storage balance identified in Appendix A and the following methodology:

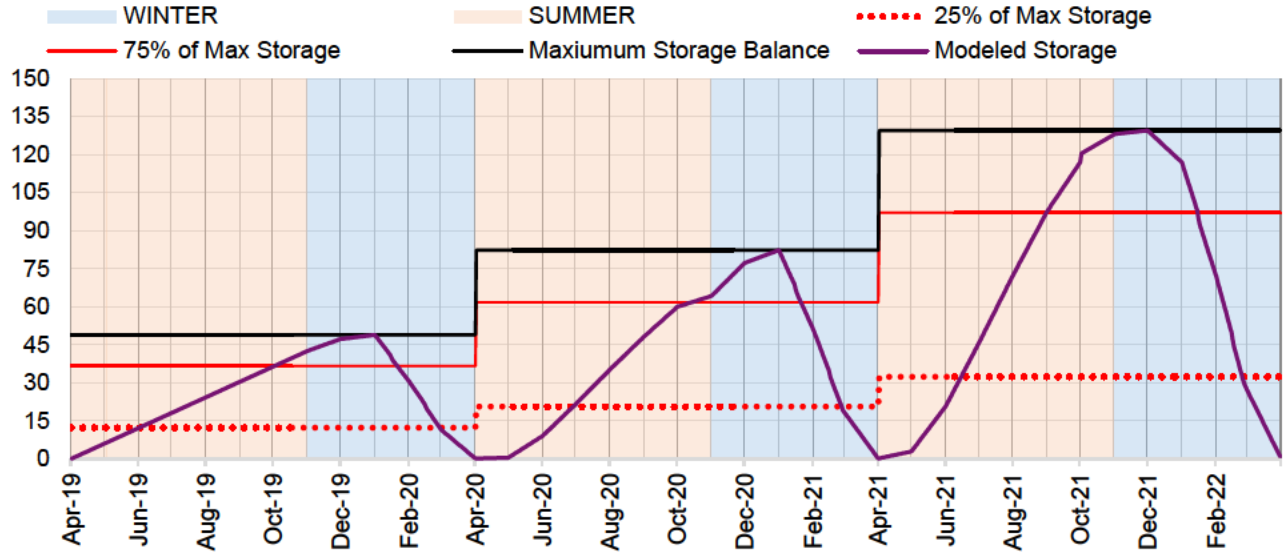
- 1) For the Seasonal Baseload Supply Option, summer or base procurement volumes are adjusted above the baseload volume, so that the storage position by October 31st is able to provide supply reliability up to March 31st given the Base Case demand forecast (including the 5 peak days in the winter period).
- 2) For the Annual Baseload Supply Option, the annual flat volume is adjusted up so that the storage position by October 31st is able to provide supply reliability up to March 31st given the Base Case demand forecast (including the 5 peak days in the winter period).
- 3) The maximum storage balance for the storage year (April to March) is set to 1 GJ above the maximum storage position given the base case demand forecast (including the 5 peak days in the winter period).

The steps above are produced in the model using the Goal Seek function in excel.

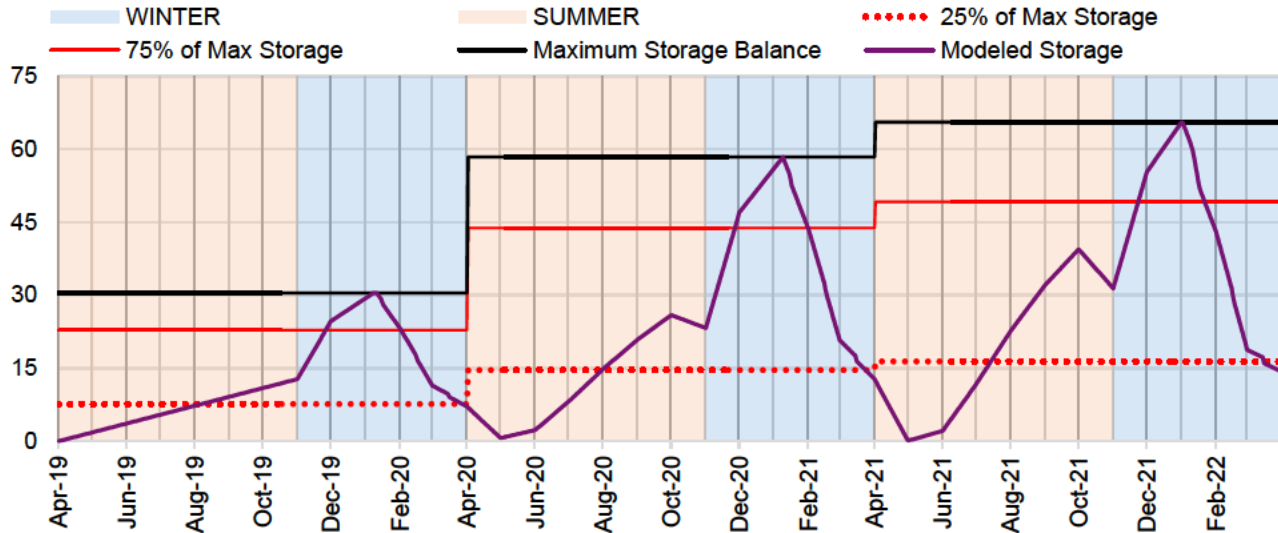
- 1) For Step 1 and 2, the goal seek function will search for the procurement adjustment volume necessary to get the minimum storage position during the storage year to 1 GJ given the base case demand forecast (including the 5 peak days in the winter period).
- 2) For Step 2, the goal seek function will search the necessary maximum storage balance so that the highest storage position is 1 GJ below the maximum given the base case demand forecast (including the 5 peak days in the winter period).

While the Month-to-Month Supply Option does not require the procurement of storage, the Annual and Seasonal Baseload Procurement strategies do. The following two figures provide a visual of how storage volumes track over the course of the planning horizon.

Storage Tracker (1,000 GJs) - Annual Baseload Supply Option



Storage Tracker (1,000 GJs) - Seasonal Baseload Supply Option



Appendix E: Supply Option Portfolio Costs, By Year

The following tables summarize the results of the sensitivity analysis, with costs broken down by each Supply Option, by year.

Scenarios Modelled:

- (a) Winter demand (Nov-Mar) is 30% above normal, based on 5-years of historical Heating Degree Day data at Goderich weather station.
- (b) Winter demand (Nov-Mar) is 30% below normal, based on 5-years of historical Heating Degree Day data at Goderich weather station.
- (c) Commodity price increases one standard deviation above normal, based on historical prompt month and next day Dawn prices
- (d) Average monthly commodity price based on monthly (prompt month) and daily (spot) Dawn prices during Winter 2013-2014
- (e) Cost of storage is one standard deviation above normal, based on 5-year historical seasonal price spread

Table 11 - Cost Impacts of Changes in Key Variables for each Supply Option – 2019

Particulars	Sensitivity Analysis					
	Base Case	(a)	(b)	(c)	(d)	(e)
<u>Annual Baseload Supply Option</u>						
Commodity Cost (Baseload)	\$431,528	\$431,528	\$431,528	\$572,478	\$638,696	\$431,528
Commodity Cost (Spot Gas)	\$4,425	\$98,019	\$0	\$10,259	\$15,252	\$4,425
Transportation Fuel Cost	\$3,481	\$4,526	\$2,437	\$5,056	\$6,406	\$3,481
Storage Plan Cost	\$41,531	\$41,531	\$41,531	\$41,531	\$41,531	\$60,689
Injection/Withdrawal Cost	\$588	\$598	\$359	\$588	\$588	\$588
M17 LBA Charges	\$0	\$0	\$31,922	\$0	\$0	\$0
M17 Transportation Charges	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836
Management Cost	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
Total Cost	\$826,390	\$921,038	\$852,613	\$974,748	\$1,047,310	\$845,548
Cost per GJ of Demand	\$6.3291	\$5.4262	\$9.3285	\$7.4654	\$8.0211	\$6.4758
Cost per m3 of Demand	24.6203	21.1078	36.2879	29.0403	31.2020	25.1910
% Deviation from Base Case		85.73%	147.39%	117.95%	126.73%	102.32%
<u>Seasonal Baseload Supply Option</u>						
Commodity Cost (Baseload)	\$467,556	\$467,556	\$467,556	\$641,728	\$760,806	\$467,556
Commodity Cost (Spot Gas)	\$4,723	\$88,666	\$0	\$11,266	\$16,937	\$4,723
Transportation Fuel Cost	\$3,481	\$4,526	\$2,437	\$5,056	\$6,406	\$3,481
Storage Plan Cost	\$25,877	\$25,877	\$25,877	\$25,877	\$25,877	\$37,814
Injection/Withdrawal Cost	\$324	\$351	\$185	\$324	\$324	\$324
M17 LBA Charges	\$35	\$0	\$328,780	\$35	\$35	\$35
M17 Transportation Charges	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836
Management Cost	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
Total Cost	\$846,833	\$931,812	\$1,169,671	\$1,029,122	\$1,155,222	\$858,770
Cost per GJ of Demand	\$6.4857	\$5.4896	\$12.7975	\$7.8818	\$8.8476	\$6.5771
Cost per m3 of Demand	25.2293	21.3547	49.7821	29.7144	33.3553	25.5850
% Deviation from Base Case		84.64%	197.32%	117.78%	132.21%	101.41%
<u>Month-to-Month Supply Option</u>						
Commodity Cost (Baseload)	\$445,794	\$445,794	\$445,794	\$646,553	\$818,144	
Commodity Cost (Spot Gas)	\$9,967	\$146,661	\$0	\$22,603	\$33,307	
Transportation Fuel Cost	\$3,481	\$4,526	\$2,437	\$5,056	\$6,406	
Storage Plan Cost	\$0	\$0	\$0	\$0	\$0	
Injection/Withdrawal Cost	\$0	\$0	\$0	\$0	\$0	
M17 LBA Charges	\$0	\$0	\$820,117	\$0	\$0	
M17 Transportation Charges	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836	
Management Cost	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	
Total Cost	\$804,078	\$941,817	\$1,613,184	\$1,019,048	\$1,202,694	
Cost per GJ of Demand	\$6.1582	\$5.5486	\$17.6500	\$7.8046	\$9.2111	
Cost per m3 of Demand	23.9555	21.5840	68.6584	29.4235	34.7260	
% Deviation from Base Case		90.10%	286.61%	122.83%	144.96%	

Table 12 - Cost Impacts of Changes in Key Variables for each Supply Option - 2020

Particulars	Sensitivity Analysis					
	Base Case	(a)	(b)	(c)	(d)	(e)
<u>Annual Baseload Supply Option</u>						
Commodity Cost (Baseload)	\$906,424	\$906,424	\$906,424	\$1,197,257	\$1,324,851	\$906,424
Commodity Cost (Spot Gas)	\$10,852	\$176,676	\$0	\$27,180	\$41,904	\$10,852
Transportation Fuel Cost	\$6,559	\$8,360	\$4,758	\$9,520	\$12,106	\$6,559
Storage Plan Cost	\$53,498	\$53,498	\$53,498	\$53,498	\$53,498	\$78,177
Injection/Withdrawal Cost	\$991	\$983	\$586	\$991	\$991	\$991
M17 LBA Charges	\$0	\$409	\$120,027	\$0	\$0	\$0
M17 Transportation Charges	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836
Management Cost	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
Total Cost	\$1,323,160	\$1,491,186	\$1,430,130	\$1,633,282	\$1,778,186	\$1,347,839
Cost per GJ of Demand	\$4.4896	\$4.0859	\$6.3711	\$5.5419	\$6.0336	\$4.5734
Cost per m3 of Demand	17.4646	15.8941	24.7835	21.5580	23.4706	17.7903
% Deviation from Base Case		91.01%	141.91%	123.44%	134.39%	101.87%
<u>Seasonal Baseload Supply Option</u>						
Commodity Cost (Baseload)	\$952,006	\$952,006	\$952,006	\$1,290,003	\$1,505,051	\$952,006
Commodity Cost (Spot Gas)	\$8,246	\$151,855	\$0	\$20,576	\$31,691	\$8,246
Transportation Fuel Cost	\$6,559	\$8,360	\$4,758	\$9,520	\$12,106	\$6,559
Storage Plan Cost	\$37,961	\$37,961	\$37,961	\$37,961	\$37,961	\$55,472
Injection/Withdrawal Cost	\$695	\$738	\$422	\$695	\$695	\$695
M17 LBA Charges	\$7,216	\$277	\$660,039	\$7,216	\$7,216	\$7,216
M17 Transportation Charges	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836
Management Cost	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
Total Cost	\$1,357,518	\$1,496,033	\$2,000,022	\$1,710,807	\$1,939,555	\$1,375,030
Cost per GJ of Demand	\$4.6062	\$4.0992	\$8.9099	\$5.8049	\$6.5811	\$4.6656
Cost per m3 of Demand	17.9181	15.9458	34.6595	22.5812	25.6005	18.1492
% Deviation from Base Case		88.99%	193.43%	126.02%	142.88%	101.29%
<u>Month-to-Month Supply Option</u>						
Commodity Cost (Baseload)	\$937,719	\$937,719	\$937,719	\$1,335,883	\$1,643,447	
Commodity Cost (Spot Gas)	\$17,641	\$253,365	\$0	\$41,039	\$61,588	
Transportation Fuel Cost	\$6,559	\$8,360	\$4,758	\$9,520	\$12,106	
Storage Plan Cost	\$0	\$0	\$0	\$0	\$0	
Injection/Withdrawal Cost	\$0	\$0	\$0	\$0	\$0	
M17 LBA Charges	\$0	\$30	\$1,664,428	\$0	\$0	
M17 Transportation Charges	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836	
Management Cost	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	
Total Cost	\$1,306,755	\$1,544,310	\$2,951,741	\$1,731,278	\$2,061,977	
Cost per GJ of Demand	\$4.4339	\$4.2315	\$13.1497	\$5.8744	\$6.9965	
Cost per m3 of Demand	17.2481	16.4604	51.1523	22.8514	27.2164	
% Deviation from Base Case		95.43%	296.57%	132.49%	157.79%	

Table 13 - Cost Impacts of Changes in Key Variables for each Supply Option – 2021

Particulars	Sensitivity Analysis					
	Base Case	(a)	(b)	(c)	(d)	(e)
<u>Annual Baseload Supply Option</u>						
Commodity Cost (Baseload)	\$1,335,387	\$1,335,387	\$1,335,387	\$1,737,060	\$1,846,325	\$1,335,387
Commodity Cost (Spot Gas)	\$12,814	\$228,742	\$0	\$34,546	\$54,562	\$12,814
Transportation Fuel Cost	\$9,577	\$12,038	\$7,005	\$13,685	\$17,058	\$9,577
Storage Plan Cost	\$81,570	\$81,570	\$81,570	\$81,570	\$81,570	\$119,198
Injection/Withdrawal Cost	\$1,560	\$1,765	\$976	\$1,560	\$1,560	\$1,560
M17 LBA Charges	\$0	\$974	\$210,373	\$0	\$0	\$0
M17 Transportation Charges	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836
Management Cost	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
Total Cost	\$1,785,744	\$2,005,312	\$1,980,147	\$2,213,257	\$2,345,911	\$1,823,372
Cost per GJ of Demand	\$3.9888	\$3.6580	\$5.7036	\$4.9437	\$5.2400	\$4.0729
Cost per m3 of Demand	15.5165	14.2295	22.1871	19.2311	20.3838	15.8434
% Deviation from Base Case		91.71%	142.99%	123.94%	131.37%	102.11%
<u>Seasonal Baseload Supply Option</u>						
Commodity Cost (Baseload)	\$1,414,597	\$1,414,597	\$1,414,597	\$1,910,390	\$2,207,318	\$1,414,597
Commodity Cost (Spot Gas)	\$21,163	\$214,961	\$0	\$44,475	\$64,015	\$21,163
Transportation Fuel Cost	\$9,577	\$12,038	\$7,005	\$13,685	\$17,058	\$9,577
Storage Plan Cost	\$41,340	\$41,340	\$41,340	\$41,340	\$41,340	\$60,410
Injection/Withdrawal Cost	\$879	\$839	\$572	\$879	\$879	\$879
M17 LBA Charges	\$0	\$782	\$1,488,532	\$0	\$0	\$0
M17 Transportation Charges	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836
Management Cost	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
Total Cost	\$1,832,393	\$2,029,394	\$3,296,883	\$2,355,606	\$2,675,446	\$1,851,463
Cost per GJ of Demand	\$4.0930	\$3.7019	\$9.4964	\$5.2617	\$5.9761	\$4.1356
Cost per m3 of Demand	15.9218	14.4004	36.9409	20.4680	23.2471	16.0875
% Deviation from Base Case		90.44%	232.01%	128.55%	146.01%	101.04%
<u>Month-to-Month Supply Option</u>						
Commodity Cost (Baseload)	\$1,405,928	\$1,405,928	\$1,405,928	\$1,968,507	\$2,358,545	
Commodity Cost (Spot Gas)	\$23,100	\$359,718	\$0	\$53,670	\$80,490	
Transportation Fuel Cost	\$9,577	\$12,038	\$7,005	\$13,685	\$17,058	
Storage Plan Cost	\$0	\$0	\$0	\$0	\$0	
Injection/Withdrawal Cost	\$0	\$0	\$0	\$0	\$0	
M17 LBA Charges	\$0	\$919	\$2,770,695	\$0	\$0	
M17 Transportation Charges	\$309,836	\$309,836	\$309,836	\$309,836	\$309,836	
Management Cost	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	
Total Cost	\$1,783,440	\$2,123,438	\$4,528,464	\$2,380,699	\$2,800,929	
Cost per GJ of Demand	\$3.98	\$3.8734	\$13.0438	\$5.3178	\$6.2564	
Cost per m3 of Demand	15.4964	15.0677	50.7405	20.6861	24.3375	
% Deviation from Base Case		97.23%	327.43%	133.49%	157.05%	

Appendix F: Modelled Dawn Prices (CAD per GJ) for Supply Options Base Case

Month	Year			
	2019	2020	2021	2022
Jan		\$3.5830	\$3.4413	\$3.4403
Feb		\$3.5348	\$3.4012	\$3.4014
Mar		\$3.4066	\$3.2957	\$3.3156
Apr	\$3.0920	\$2.7866	\$2.6906	
May	\$2.9550	\$2.7415	\$2.6530	
Jun	\$3.0094	\$2.7755	\$2.6884	
Jul	\$2.9878	\$2.8114	\$2.7264	
Aug	\$2.9604	\$2.8200	\$2.7419	
Sep	\$2.9517	\$2.7998	\$2.7398	
Oct	\$2.9525	\$2.8190	\$2.7724	
Nov	\$3.3112	\$3.1511	\$3.1420	
Dec	\$3.4660	\$3.3112	\$3.3123	

12.5. Appendix G: Key Terms

Balancing Gas:	The volume of gas purchased for the purpose of clearing the Cumulative or Daily Operating Imbalance.
Baseload Gas:	The minimum amount of natural gas delivered or contracted over a given period of time at a steady rate or price structure.
Cap and Trade:	Ontario's cap and trade program is a market-based system that sets a hard cap on greenhouse gas emission. The cap is lowered over time and participants in the program must procure compliance instruments (e.g. emissions allowances, offset credits) to cover their annual emissions.
Clean Fuel Standard:	a performance-based approach to reducing the carbon intensity of fossil fuels that would incent the use of a broad range of low carbon fuels, energy sources and technologies, such as electricity, hydrogen, and renewable fuels, including renewable natural gas. It would establish lifecycle carbon intensity requirements separately for liquid, gaseous and solid fuels, and would go beyond transportation fuels to include those used in industry and buildings.
Contract Customers:	A service whereby a customer or their agent arranges for gas supply and/or upstream transmission services directly, and arranges for EPCOR's distribution service to deliver gas to end-user locations (also known as Direct Purchase Customers)
Contract Demand:	The maximum volume or quantity of gas that EPCOR is obligated to deliver in any one day to a customer under all services or, if the context so requires, a particular service at the consumption point. Contract Demand is based on Design Day volume for General Service customers of 138,200 m ³ /day.
Cumulative Operating Imbalance:	The accumulative Daily Operating Imbalance for all Gas Days.
Daily Operating Imbalance:	The difference between the total confirmed nominations for a Gas Day and the Measurement Estimate for such Gas Day, as tracked under the LBA provision of the M17 Transportation Contract.
Dawn:	Located southeast of Sarnia, Ontario, Dawn is referred to as a Hub as it represents the point where Union Gas' supply, storage and transmission systems meet. A number of other pipeline systems (e.g. TCPL, Vector) are interconnected to Union Gas' distribution system at Dawn.

Design Day:	The maximum volume or quantity of gas that Union Gas is obligated to deliver to EPCOR. Assumed to be 227,912 m ³ /day in Year 10 of EPCOR's service, assuming a 2019 in-service date. Design Day captures forecasted demand for both General Service and Contract Customers.
Gas Day:	A period of 24 consecutive hours, beginning at 10:00 am ET. The reference date for any day shall be the calendar date upon which the twenty-four (24) hour period commences.
Gas Year:	A period of twelve (12) consecutive months usually beginning on November 1 st and continuing until October 31 st of the following year.
General Service Customer:	A customer who is within EPCOR's franchise area, who purchases gas directly from EPCOR and is supplied by EPCOR's gas distribution system (also called a System Customer).
Heating Degree Day:	The number of degrees that a day's average temperature is below 18°C, which is the temperature below which buildings need to be heated.
Injection Season:	Period which EPCOR's has firm injection rights under the storage contract (December 1 to September 30)
Limited Balancing Agreement (LBA):	Pursuant to the M17 contract, the LBA sets the terms for the operation, management, and fees associated with variances or imbalances between confirmed nominations and actual quantity delivered (Measurement Estimate) by EPCOR on a daily and cumulative basis.
LBA Balancing Fees:	Fees incurred by EPCOR if the Daily Operating Imbalance or the Cumulative Operating Imbalance exceeds 2,111 GJ/d or 4221 GJs, respectively. Fee schedule is outlined in the Limited Balancing Agreement.
M17 Transportation Contract:	A proposed transportation service offered to EPCOR by Union Gas, designed specifically for the transport of gas from Dawn to a delivery point at the interconnection between Union's System and EPCOR's System, commonly known as Dornoch.

Maximum Storage Balance (MSB):	The maximum quantity of natural gas that EPCOR may have stored with a third-party storage supplier as per the storage contract.
Measurement Estimate:	Daily telemetry estimates of the total quantity of gas flowed at the Dornoch interconnection point provided to EPCOR by Union.
Month-to-Month Gas:	Volume of gas contracted on a per-month basis to meet forecasted demand.
Nominations:	A request to Union Gas for gas service in accordance with Union Gas' nomination provisions.
Open Season:	A period during which all parties or all requests for transportation or storage services will be given equal consideration.
Peak Day:	The 24-hour period of greatest total gas send out. For the purpose of this Supply Plan, EPCOR assumes a Peak Day is when demand on a given day is 50% higher than the average forecasted demand in that month.
Reference Price:	The average cost per GJ in Canadian dollars that represents the forward market price at Dawn. Calculated by applying a forward Dawn basis differential to the future 12-month NYMEX market prices, applying a foreign exchange rate and weighting these monthly prices by the volume EPCOR plans to buy in each of the 12 months.
Renewable Natural Gas:	A biogas produced from organic waste from farms, forests, landfills, and water treatment plants. The gas is captured, cleaned, and injected in pipelines to be used in the same way as natural gas by homes, businesses, institutions, and industry.
Request for Proposal (RFP):	An invitation by a potential purchaser for suppliers, often through a bidding process, to submit a proposal on a specific service or product.
Spot Procurement:	The procurement of natural gas in the natural gas spot market. Generally spot procurement is short-term (one to three days). Spot purchases are often made by a user to fulfill a certain portion of energy requirements, to meet unanticipated energy needs, take advantage of low fuel prices, or

reduce Cumulative and Daily Operating Imbalances.

Summer Period: The period from April 1 to October 31, representing 214 days.

Western Canadian Sedimentary Basin (WCSB): The Western Canadian Sedimentary Basin (WCSB) is a vast sedimentary basin underlying 1,400,000 square kilometres (540,000 sq mi) of Western Canada including south-western Manitoba, southern Saskatchewan, Alberta, north-eastern British Columbia and the southwest corner of the Northwest Territories. It consists of a massive wedge of sedimentary rock extending from the Rocky Mountains in the west to the Canadian Shield in the east. This wedge is about 6 kilometres (3.7 mi) thick under the Rocky Mountains, but thins to zero at its eastern margins.

Winter Baseload: The minimum amount of natural gas delivered or contracted over the winter period at a steady rate or price structure, to meet average forecasted demand during that period.

Winter Period: The period from November 1 to March 31, representing a total of 151 days (152 days in a leap year)

Withdrawal Season: Period which EPCOR's has firm injection rights under the storage contract (June 1 to March 31)