Blatchford Renewable Energy Utility

2020 Rate Filing

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1.0 Overview

This 2020 Blatchford Renewable Energy Utility Rate Filing is the annual filing for approval of end use customer rates for the Blatchford Renewable Energy Utility ("BREU" or "Utility"). As per Section 3.0 of the Blatchford District Energy Utility Fiscal Policy C597 ("Fiscal Policy");

> "The Utility Committee shall recommend annually to City Council the customer rates for the upcoming year, based on review of an annual rate filing prepared by the Utility subsequent to the preparation and presentation of the 4-year Business Plan."

This Rate Filing is requesting City Council approval of the following:

- Customer Rates, provided in Appendix 5.0, and Infrastructure Fees for 2020.

Further discussion in respect of the Fiscal Policy is included in Section 3 of this Rate Filing. A copy of the Fiscal Policy is included in Appendix 2.0.

In preparing this Rate Filing, the Utility has followed the principles as set out in the Fiscal Policy. In particular, the Utility established the forecast 2020 revenue requirement based on a traditional cost of service approach while taking into account a Policy Statement in the Fiscal Policy that end-use customers would pay "at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs". This Policy Statement guided the approach taken to design end use customer rates in 2019 and will henceforth be referred to as the Business as Usual ("BAU") approach.

With the initial customer rates having been established for 2019 based on the BAU approach, the methodology used to set customer rates for 2020 has also take into consideration the requirement for "stable consistent rate increases" in accordance with the Fiscal Policy and utility rate setting principles. In order to assist in establishing end use customer rates in 2020, the Utility engaged Grant Thornton to calculate what 2020 customer rates would be based on the 2019 BAU methodology, incorporating updated data and assumptions. As was the case in the Blatchford 2019 Rate Filing, Grant Thornton utilized a "pegged" approach wherein Blatchford customer utility bills are "pegged" to their BAU counterparts, or what utility bills would be elsewhere in the City of Edmonton. As an alternative to 2020 customer rates based on the pegged approach, Grant Thornton also calculated the impact of escalating 2019 approved rates by 2.7% (consistent with the levelized approach used in the Blatchford Renewable Energy Utility business case presented to City Council on March 15, 2016 and updated as part of the Fiscal Policy).

This Rate Filing recommends that 2020 customer rates be established based on the approved 2019 customer rates escalated by 2.7%, with the current Infrastructure Fees established in 2019 remaining in effect for 2020. This approach results in customer rates for 2020 that are:

- comparable to the 2020 rates determined in the Business Decision/Financial model upon which the $93 million non-refundable cash infusion and the Blatchford Utility Fiscal Policy key financial indicators were established;

- consistent with the Blatchford Utility Fiscal Policy that requires stable consistent rate increases;
- lower than rates based on the pegged approach and therefore in accordance with the Blatchford Utility Fiscal Policy that customers pay at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs;
- relatively simple to understand and implement; and
- comparable to the stable and consistent rate increases for other utility services in Edmonton including Waste Services (2.5% average annual increase projected from 2019 to 2022) and Drainage Services (3% average annual increase for January 1, 2018 to March 31, 2022 as prescribed in Bylaw 18100).

A further discussion of the methodology utilized to establish the proposed 2020 end use customer rates is included in Section 6. A copy of Grant Thornton's Rate Review is included in Appendix 1.0.

It is expected that the very first customer connections to the BREU system will occur during the fourth quarter of 2019 with a forecast of 53 customers connected to the system by the end of 2020. Given that customer rates are to be set utilizing the BAU approach escalated by 2.7% in 2020, the 2020 forecast customer revenue will not be sufficient to fully recover the Utility's 2020 forecast revenue requirement. It is anticipated that this will be the case for each year during the 2020 to 2022 forecast period as the Utility grows and matures. As a result, the Utility has implemented a deferral account whereby the annual revenue shortfall amounts will be accumulated in the deferral account until such time as the customer revenues exceed the Utility's revenue requirement. Consistent with Section 2.1C of the Fiscal Policy the Utility will borrow from the City of Edmonton in order to meet the insufficient cash flow during its first years of operation. Further details are provided in Section 6.

The Utility has provided a set of schedules with details of its 2020 revenue requirement and revenue on proposed rates in Appendix 4. These schedules utilize very similar format and content to the Minimum Filing Requirements format utilized in the electric and gas utility industry in Alberta.

The Rate Filing is organized as follows:

Section 2.0 - Background on the Blatchford Development
Section 3.0 - Blatchford Fiscal Policy
Section 4.0 - Blatchford 2020-2023 Business Plan
Section 5.0 - 2020 Forecast Revenue Requirement
Section 6.0 - Cost of Service, Rate Design, Revenue on Proposed Rates & Bylaw 17943
Section 7.0 - Appendices 1.0 - 5.0

2.0 Background

The Blatchford development is aimed to be one of the world's largest sustainable communities and home to 30,000 residents. Blatchford will be comprised of two primarily residential spaces on the east and west side of the site, along with a town centre, an 80-acre central park with plenty of green space throughout the community, as well as a civic plaza.

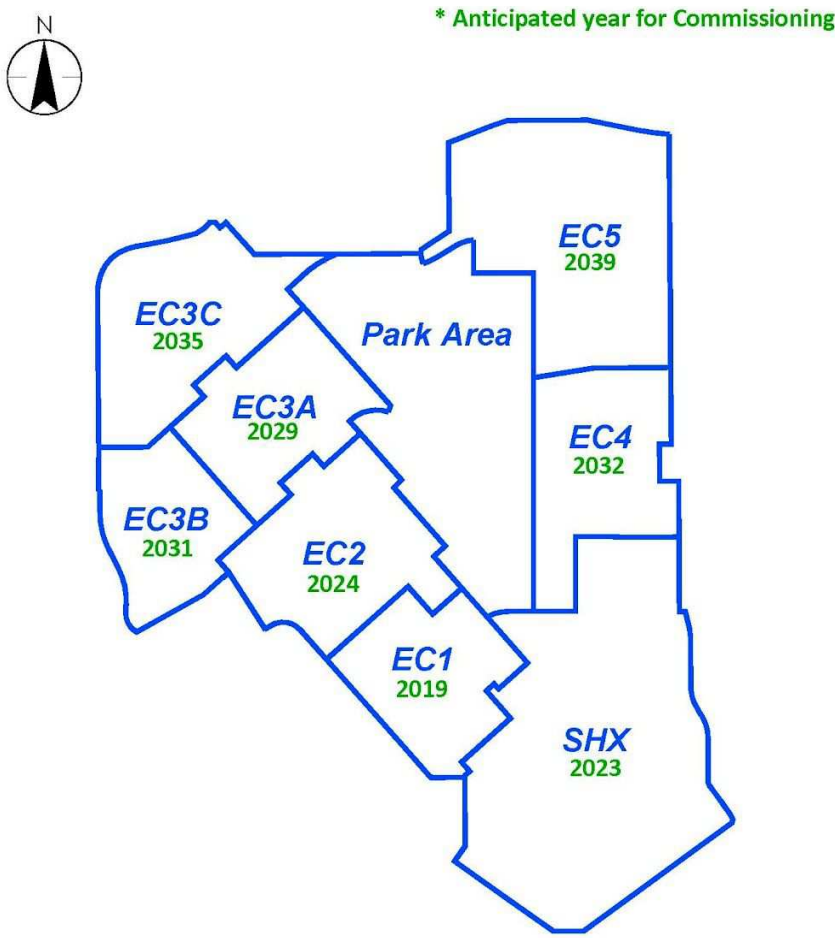
A new public, city owned utility has been established, the Blatchford Renewable Energy Utility, that will own and operate a District Energy Sharing System ("DESS") and certain mechanical equipment within the customer buildings themselves. All buildings in Blatchford, with the exception of net-zero carbon buildings, must be connected to the DESS for all heating, cooling and domestic hot water services.

The first stage of the Utility development of the DESS consists of: a geoexchange borefield located under the future stormwater pond; Energy Centre No. 1 located on the future Blatchford Plaza; and a distribution piping system which carries district energy water from the Energy Centre to Stage 1 of the Blatchford land development.

Customer condominium buildings will contain an energy transfer station that transfers thermal energy from the DESS for the buildings. Blatchford buildings will use renewable district energy for heating and cooling and, as such, buildings will not need to be equipped with traditional systems related to the production of thermal energy, such as furnaces, boilers, chillers or fireplaces. Blatchford buildings will also not require ancillaries such as boiler venting or cooling towers. The Utility will own, operate and maintain the central mechanical systems in the energy transfer station, reducing the operational burden on the builder and homeowner. Builders will fund the initial building of these energy transfer stations but the Utility will ultimately own, operate and maintain all equipment in the energy transfer stations.

The Utility will follow the Blatchford development schedule and will adjust accordingly as considerations change along the way. Overall a staged approach for the land development and Utility is planned in Blatchford, which will also include periodic updates of the energy and financial model for the Utility. Following the current land development scenario, the overall service area and potential locations and staging/commissioning of future Utility operated Energy Centers for the DESS is outlined in Figure 1. Each Energy Center ("EC") will provide energy to defined stages of land development. At full build out, currently anticipated in 2047, the Utility is expected to have more than 16,000 customers. Figure 1 identifies Energy Centers based on geothermal ground heat exchange technology, and the Sewer Heat Recovery Energy Centre ("SHX") located in the Town Centre of Blatchford.

Figure 1: Blatchford Staging Plan



Construction and the commissioning of Energy Center 1 ("EC1") was completed during the third quarter of 2019. EC1 will have the capacity to provide thermal energy to all customers expected to connect during the 2019-2022 forecast period. All other energy centers shown in Figure 1 above will not be operational during the 2019-2022 forecast period, although capital expenditures for planning and initial construction for the Sewer Heat Recovery Energy Centre (SHX) and initial planning for Energy Center 2 will be required during the 2019-2022 forecast period.

Achieving financial sustainability for the new Utility depends on factors such as receiving a non refundable cash infusion, stable rate structure and other related Utility fees. This relationship and importance was outlined in more detail in several documents that have been previously provided to the Utility Committee and City Council. The City of Edmonton retained a consultant to develop a Business Decision Model ("Financial Model") to assist in developing a framework to achieve financial stability for the Utility. This Financial Model provided guidance and direction in establishing the end use customer rates and regulatory framework proposed in this Rate Filing. Two additional documents, the Fiscal Policy and the 2020-2023 Business Plan, are discussed in more detail below.

3.0 Fiscal Policy

On April 10, 2018, City Council approved the Blatchford Fiscal Policy. The Fiscal Policy is the prerequisite required to support the first four year Utility Business Plan and Bylaw including rates. As stated in the Fiscal Policy, the purpose of the Policy is to:

1. Ensure that the Blatchford District Energy Utility is operated in a manner that reflects City Council's overall vision and philosophical objectives for the Utility.
2. Ensure that there is a consistent approach year over year for the financial planning, budgeting, and rate setting for the City managed Utility.
3. Ensure that the Utility is financially sustainable over the long term.

In addition to the three statements noted above, the following four Policy Statements outlined in the Fiscal Policy helped establish the regulatory framework and methodology utilized in this Rate Filing:

1. The Utility is to be operated in a manner that balances the best possible service at the lowest cost (public utility) while employing private sector approaches to rate setting.
2. Similar to private utilities, the Utility will account for the cost of service under a full cost accounting approach. All customer charges will be based upon cost of service with the end user (customer) paying at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs.
3. Through a phased approach, the Utility will generate positive net income, cash flow and a rate of return sufficient to cover current year expenses, working capital requirements, and to facilitate the funding for capital infrastructure and rehabilitation and replacement of capital assets.
4. The Utility is to contribute towards achieving the City's Energy Transition Strategy.

In respect of this 2020 Rate Filing and the end-use customer rates included herein, the second Policy Statement, in particular, was instructive in establishing the framework for the setting of the end-use customer rates, both the rates levels and the rate structure. This will be discussed further in the Rate Design section of this Filing.

A copy of the Fiscal Policy has been provided in Appendix 2.0.

4.0 2020-2023 Business Plan

The 2020-2023 Business Plan was presented to the Utility Committee on June 28, 2019 (Integrated Infrastructure Services report CR_6902). A copy of the Business Plan is included in Appendix 3.0. As noted on page 13 of the Business Plan, the Business Plan adheres to the principles established in the Blatchford Fiscal Policy. The Utility will strive towards achieving the financial indicators as set out in the Fiscal Policy (i.e. Positive Net Income, Positive Cash Position, Debt Financing of Capital).

Also noted on page 13 of the Business Plan, in the first four years, as the Utility continues to develop and moves towards longer term financial sustainability, the regulatory and financial priorities are to:

- Establish the regulatory framework and customer rates based upon a cost of service methodology that ensures the Blatchford Renewable Energy Utility customers pay at most a comparable energy fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs;
- Obtain a non-refundable cash infusion in order to fund the initial stages of the Utility infrastructure development;
- Obtain short-term bridge financing to be used as working capital for the day-to-day operations of the Utility as it continues to mature and begins to generate positive net income and a positive cash position as the number of residents and utility customers increase.

The Utility will fund its operating and capital requirements from a number of sources. The following sources of funding will be required and utilized during the initial years of operation:

- Rate Revenue
  The Utility will generate revenue through monthly customer rates. Rates will be designed to be at most comparable to what customers would pay elsewhere in the City through their energy utility bills and annual maintenance costs.

- Non-refundable cash-infusion
  A non-refundable cash infusion is required for the initial years of operation to offset the capital investment required to establish the Utility and allow it to grow over time to achieve financial sustainability. The total amount required is anticipated to be $93 million.

- Builder Contributed Capital
  The Builder will pay for central mechanical room equipment in multi-unit buildings, which will then be owned, operated and maintained by the Utility. These will be contributed assets on the Utility's balance sheet and will not attract a net depreciation expense or a return on rate base.

- Infrastructure Fee
  The Utility will collect a one time infrastructure fee for units and buildings from the builders that connect to the DESS. For residential units, an infrastructure fee of $1,750 is currently approved. For each commercial development, the infrastructure fee is $20 per square meter ($m^2$) of floor space. This fee creates an additional source of revenue for the Utility that would otherwise need to be funded by Utility rates or the non-refundable cash infusion.

5.0 2020 Forecast Revenue Requirement

Methodology and Key Assumptions

The 2020 BREU Rate Filing utilizes the methodology established in the 2019 BREU Rate Filing and adheres to the principles set out in the Blatchford Fiscal Policy, which establishes the framework for how BREU will set rates, finance its capital and manage its cash position. As per the Fiscal Policy, an annual rate filing will be submitted each year requesting City Council approval of end use customer rates for the following year.

The schedules provided in the 2020 Rate Filing include amounts for the following years: 2019 approved budget, 2019 current forecast (with actuals to the end of August), 2020 proposed forecast, and the most recent forecast for 2021 and 2022. The 2019 approved budget amounts were approved by City Council in December of 2018.

In this Rate Filing it is assumed that the first Blatchford customers will be connected later in 2019. It is expected that fee-simple townhomes will be the only residence type to be connected to the system through to the end of 2020. It is expected that other types of residences, such as multi story apartment/condominium buildings, will be connected starting in 2021 and that the old airport control tower will also be connected to the system in 2021. The following table summarizes the forecast connections and energy consumption during the 2020-2022 forecast period.

Table 1: Forecast Customer Connections and Energy Consumption by End Use

	2019	2019	2020	2021	2022
Item	Rate Filing	Current Forecast	Proposed Rate Filing	Current Forecast	Current Forecast
New Customer Connections					
Townhomes - Fee Simple	30	10	42	53	-
Townhomes - Strata	30	-	-	-	-
Apartments - 4-6 Story	171	-	-	382	470
Apartments - 7-10 Story	31	-	-	-	-
Commercial/Office	-	-	-	-	-
Other - Control Tower	-	-	1	-	-
Total New Customer Connections	**262**	**10**	**43**	**435**	**470**
Energy Consumption (MWh)					
Townhomes - Fee Simple	100.0	25.0	273.3	523.3	700.0
Townhomes - Strata	102.5	-	-	-	-
Apartments - 4-6 Story	485.5	-	-	1,084.6	3,503.5
Apartments - 7-10 Story	110.0	-	-	-	-
Commercial/Office	-	-	-	-	-
Other - Control Tower	-	-	3.3	6.7	6.7
Total Energy Consumption	**798.0**	**25.0**	**276.7**	**1,614.6**	**4,210.2**

Other than the old airport control tower, the current customer build-out forecast includes only residential customers during the 2019-2022 forecast period. Other than the possibility of small retail establishments in the base of the multi-story buildings being added during the 2019-2022 forecast period, it is anticipated that there will be no larger commercial, office or institutional customer connections until 2025.

As noted in the 2020-2022 Business Plan,

> "A non-refundable cash infusion is required for the initial years of operation to offset the capital investment required to establish the Utility and allow it to grow over time to achieve financial sustainability."

The total non-refundable cash infusion required to achieve financial stability is currently projected to be $93 million. For purposes of calculating the revenue requirement and deferral account under Cost of Service in the 2020 Rate Filing, the non-refundable cash contribution for the initial capital investments has been assumed to be funded at this time (since customer rates in 2019 and 2020 are based on the pegged approach), resulting in no long term interest expense or amortization being incorporated. The 2020 revenue requirement and deferral account under Cost of Service will be amended in future annual rate filings as the availability of the non-refundable cash infusion is further clarified.

In addition, builder contributed capital will be utilized to fund certain assets, specifically equipment in the mechanical rooms of multi-unit buildings. Accordingly, for purposes of this Rate Filing all capital expenditures required during the 2019-2022 forecast period are assumed to be funded through the non-refundable cash infusion or builder contributed capital resulting in the Utility having no debt or rate base on its balance sheet during the forecast period.

Determination of Forecast Revenue Requirement

Total 2020 forecast revenue requirement and revenue for BREU is $1.256 million and $0.099 million respectively, resulting in a revenue shortfall of $1.157 million. It is forecast that there will be a revenue shortfall each year during the 2019-2022 forecast period as BREU grows and matures and more customers begin to connect to the BREU system. The following table provides a summary of the annual revenue requirement and customer revenue during the 2019-2022 forecast period.

Table 2 - Forecast Revenue Requirement, Customer Revenue and Revenue Surplus/(Shortfall) ($000s)

Item	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
Revenue Requirement					
Operating Costs	1,342.4	750.9	1,255.8	1,468.8	1,453.5
Depreciation	-	-	-	-	-
Return on Rate Base	-	-	-	-	-
Revenue Offsets	-	-	-	-	-
Total Revenue Requirement	**1,342.4**	**750.9**	**1,255.8**	**1,468.8**	**1,453.5**
Revenue					
Revenue on Proposed Rates	77.2	1.3	24.1	169.2	447.2
Infrastructure Fee	458.5	17.5	75.3	776.5	855.7
Total Revenue	**535.7**	**18.8**	**99.3**	**945.7**	**1,303.0**
Revenue Surplus (shortfall)	(806.7)	(732.2)	(1,156.5)	(523.1)	(150.5)

The revenue requirement for BREU does not include any depreciation or return on rate base during the 2019-2022 forecast period as it is expected that all capital additions during the forecast period will be funded by a combination of the non-refundable cash infusion and builder contributions, as noted above. Accordingly, BREU will have no assets on its balance sheet during the 2019-2022 forecast period and no equity, debt, interest expenses, return on equity or depreciation expense.

Operating Costs

Initial operation of the first stage of the DESS, with a relatively small number of connections and accounts, will be managed internally by the Utility in partnership with other City Departments, external contractors and technical experts. Overall focus will be on appropriate oversight of the design and initial Utility operation. Through the design and construction of the first stage of the DESS, operational and maintenance protocols will be developed and implemented into the full operation. Qualified service providers have been engaged for all aspects of utility operation. The Utility will determine an opportune time to engage an external partner as per Council's direction, which will likely occur when the initial stage of operations have matured, and during the next planning stages for the future Utility infrastructure. To promote the Blatchford Community, the Blatchford Land Development Office is growing its marketing and communication efforts in cooperation with the Blatchford Renewable Energy Utility.

The following table summarizes the forecast Operating Costs by major expense category during the 2019-2022 forecast period.

Table 3 - Forecast Operating Costs by Major Expense Category ($000s)

Item	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
Operating Costs					
Utilities	24.2	10.0	38.0	45.7	64.5
Operations & Maintenance	700.1	598.0	850.2	1,040.1	1,088.3
Administration	369.9	85.9	283.0	288.7	167.8
Customer Billing Services	175.9	14.8	22.1	21.7	58.7
Corporate Administration/Shared Services	72.4	42.2	62.4	72.7	74.2
Total Operating Costs	**1,342.4**	**750.9**	**1,255.8**	**1,468.8**	**1,453.5**

The following sections provide further detail in respect of each of the major operating cost categories shown in Table 3 above.

Utilities

BREU will require electricity and natural gas utility services in order to operate the first stage of the DESS. The following table summarizes the cost of utilities over the 2019 to 2022 forecast period.

Table 4 - Forecast Utilities Cost ($000s)

Item	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
Utility Costs					
Electricity	21.9	10.0	31.5	38.0	53.8
Natural Gas	1.9	-	3.3	4.0	6.1
Telephones	-	-	2.3	2.4	2.4
Carbon Tax	0.4	-	0.9	1.2	2.1
Total Utilities	**24.2**	**10.0**	**38.0**	**45.7**	**64.5**

Operation & Maintenance Costs

The forecast Operation & Maintenance costs for each year are comprised of the following cost categories: (1) Operation & Maintenance for all BREU owned assets, (2) Personnel, (3) Travel & Training, (4) Tools, Equipment and Vehicles and (5) Technical Consultants.

The infrastructure built and installed to serve customers at Blatchford will require ongoing maintenance as well as a workforce to manage BREU's day to day operations. The forecast operation and maintenance costs for 2019-2022 are based on a capital maintenance factor (i.e. a percentage of capital) for each class of assets (e.g. ground heat exchange equipment, energy center equipment, distribution piping, etc.) applied to the total capital in service each year for each class of assets. The capital maintenance factors were based on industry standards for similar type of equipment. It also took into account initial warranty considerations for the

equipment. Operations and maintenance will initially be provided by the City's Facilities Maintenance Services Branch.

It is currently anticipated that BREU will have five employees responsible for the managing of day to day operations during the 2019-2022 forecast period. The following table provides details of the five employees including position title and the percentage of each employee's time that will be allocated to BREU (a percentage of all five employees' time will be allocated to other renewable energy projects currently being undertaken by the City of Edmonton).

Table 5 - BREU Personnel

	2020 - 2022
Employee Title	**% FTE**
Director - Renewable Energy Systems	40%
Program Manager - Renewable Energy Systems	70%
Project Coordinator - Renewable Energy Systems	70%
Coop Engineering Student	100%
Administrative Assistant	30%

The total forecast 2020 Personnel cost was determined by applying the % FTE factor in the table above to each employee's total compensation (base salary plus benefits). An annual escalation factor of 2% was applied to determine the forecast Personnel cost for 2021-2022.

In addition to the operation and maintenance costs and the five BREU employees, consultants will be retained to assist with technical and operational aspects of running the Utility. A cost of $263,900 has been forecast for technical consultants in 2020 escalated by 2% per year each year over in 2021 and 2022.

Forecast costs for travel and training as well as tools, equipment and vehicles were also included in the Operating Cost Forecast. For 2020 an estimate of $6,900 was included for travel and training and $25,600 for tools, equipment and vehicles. The forecast cost for tools, equipment and vehicles was based on an industry standard percentage (10%) of the Personnel cost for the Program Manager and Project Coordinator positions. Costs for both travel and training and tools, equipment and vehicles were escalated by 2% per year each year for 2021 and 2022.

The following table summarizes the total Operation and Maintenance Costs over the 2019-2022 forecast period.

Table 6 - Forecast Operation & Maintenance Cost ($000s)

Item	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
Operations & Maintenance					
Energy Center 1 & Main Distribution System	155.2	-	197.8	350.1	360.8
Customer Connections and Meters	13.9	-	18.5	43.4	69.9
Personnel	275.9	337.1	337.5	344.3	351.2
Travel & Training	5.8	1.5	6.9	7.0	5.3
Tools, Equipment & Vehicles	19.3	2.3	25.6	26.1	26.6
Technical Consultants	230.0	257.2	263.9	269.2	274.6
Total Operating Costs	**700.1**	**598.0**	**850.2**	**1,040.1**	**1,088.3**

Administration Costs

The forecast Administration costs each year are comprised of: (1) Marketing, Education and Communication, and (2) Consultant Costs.

The Marketing, Education & Communication costs include internal labour costs for a Market Planner to be employed directly by the BREU for 2019, 2020 and 2021 as well as an estimate for time and materials required for marketing, communication and education of the Blatchford Community to Utility customers during the 2019-2022 forecast period.

A cost of $44,000 for 2020 was forecast for consultants to assist with non-technical (e.g. financial) aspects of setting up the BREU.

Forecast Administration costs were escalated by 2% per year for each year for 2021 and 2022.

The following table summarizes the forecast Administration costs over the 2019-2022 forecast period.

Table 7 - Administration Cost ($000s)

Item	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
Administration					
Marketing, Education & Communication	298.0	77.9	239.0	243.8	122.0
Consultants	71.9	8.0	44.0	44.9	45.8
Total Administration	**369.9**	**85.9**	**283.0**	**288.7**	**167.8**

Customer Billing Services Costs

BREU has established a Service Level Agreement with EPCOR Energy Alberta GP Inc. (“EEA”) to perform the Customer Care and Billing (“CC&B”) services in 2019 and 2020. EEA currently provides CC&B services to Edmontonians for water, drainage as well as waste services on

behalf of the City. BREU will incur a Monthly Base Services Fee of $6.50 per account per month for CC&B services in 2019 and 2020 plus an Additional Monthly Fee of $45.93 per account per month. This Additional Monthly Fee is required in 2019 and 2020 as EEA is currently in the process of replacing its Customer Information/Billing System and will be required to manually bill Blatchford customers until its new billing system is in service, currently expected to be late in 2020. Once the new billing system is in service, BREU will have to establish a new Service Level Agreement with EEA and it is expected that the new Monthly Base Services Fee will be in line with the current fee of $6.50 per account per month. For the purposes of forecasting BREU's billing costs for 2021 and 2022, the Monthly Base Service fee of $6.50 per account per month has been escalated by 2% per year. BREU will also incur a one-time cost of $13,954 required for EPCOR to set up its internal processes to start billing BREU customers. This one-time set up cost will likely be incurred in 2019. The following table summarizes the forecast Customer Service Billing Costs over the 2019-2022 forecast period.

Table 8 - Customer Billing Services Cost ($000s)

	2019	2019	2020	2021	2022
Item	Approved Budget	Current Forecast	Proposed Rate Filing	Current Forecast	Current Forecast
Customer Billing Services					
Monthly Billing Charges	23.5	0.8	22.1	21.7	58.7
One-time Set up Costs	152.4	14.0	-	-	-
Total Customer Billing Services	**175.9**	**14.8**	**22.1**	**21.7**	**58.7**

Corporate Administration Costs

The forecast Corporate Administration costs each year are comprised of: (1) Shared Services; (2) Asset Usage Fees, and; (3) Transportation and Insurance costs.

The Shared Services costs include an estimate of the cost of services required by BREU of the Finance, Law, Safety/Environment and Customer Services Branches of the City.

The following table summarizes the forecast Corporate Administration Costs over the 2019-2022 forecast period.

Table 9 - Corporate Administration Cost ($000s)

	2019	2019	2020	2021	2022
Item	Approved Budget	Current Forecast	Proposed Rate Filing	Current Forecast	Current Forecast
Corporate Administration					
Shared Services	64.4	42.2	49.2	50.2	51.2
Asset Usage Fees	8.1	-	7.5	16.7	17.1
Other - Transportation and Insurance	-	0.1	5.6	5.7	5.8
Total Corporate Administration	**72.4**	**42.2**	**62.4**	**72.7**	**74.2**

Franchise Fees and Property Taxes

Currently it is anticipated that the Utility will not be required to pay a franchise fee or property taxes on its facilities to the City of Edmonton during the 2019-2022 forecast period. Accordingly, there are no franchise fees or property tax amounts included in the 2019-2022 forecast revenue requirement.

Depreciation/Amortization

BREU's revenue requirement will not include any amounts for depreciation/amortization during the 2019 -2022 forecast period. It is anticipated that BREU's capital requirements during the initial 2019-2022 forecast period will be completely funded through a combination of the non-refundable cash infusion and builder contributions. As a result, contributed assets will be equal to gross assets on the balance sheet resulting in no rate base for BREU for the 2019-2022 forecast period.

Return on Rate Base/Interest Expenses

As noted above, BREU's assets will be fully funded via the non-refundable cash infusion as well as builder contributions resulting in no rate base during the forecast period. As a result, BREU's revenue requirement will not include any return on rate base or interest expenses during the 2019-2022 forecast period.

Revenue Offsets

Revenue Offsets are miscellaneous revenues earned by a utility and can include items such as late payment penalties, revenue from rental of company owned property and miscellaneous fees and non-rate revenues. No revenue offsets are forecast during the 2019-2022 forecast period.

Rate Base

As noted previously, all required capital for the BREU system during the 2019-2022 forecast period will be financed by a combination of the non-refundable cash infusion and builder contributions resulting in no rate base on the Utility's balance sheet. The following table provides a summary of the mid year net property, contributions and rate base.

Table 10 - Mid-Year Net Property, Contributions and Rate Base ($000s)

	2018	2019	2020	2021	2022
Item	Actual	Current Forecast	Proposed Rate Filing	Current Forecast	Current Forecast
Rate Base					
Mid-year Net Property	-	9,139.0	18,860.0	19,442.0	19,442.0
Mid-year Net Contributions	-	(9,139.0)	(18,860.0)	(19,442.0)	(19,442.0)
Net Mid-year Rate Base	-	-	-	-	-

Capital Additions and Capital Expenditures

The capital additions during the 2019-2022 forecast period will be related entirely to the development and construction costs associated with the building of the geoexchange borefield, Energy Center 1 and the distribution piping system for Phase 1 of the Blatchford development.

Capital expenditures will be incurred during the forecast period related to the planning, design and initial construction of the Sewer Heat Recovery Energy Center ("SHX") as well as initial planning and design for Energy Center 2 ("EC2"). The in-service dates for the SHX and EC2 are currently forecasted to be in 2023 and 2024 respectively. The following table provides a summary of the forecast capital additions and capital expenditures during the 2019-2022 forecast period.

Table 11 - Capital Additions and Capital Expenditures ($000s)

	2018	2019	2020	2021	2022
Item	Actual	Current Forecast	Proposed Rate Filing	Current Forecast	Current Forecast
Construction Work in Progress - Previous Year Balance	-	12,699.2	1,657.2	3,314.4	4,971.6
Current Year Capital Expenditures	12,699.2	7,236.0	2,821.2	1,657.2	22,598.1
Less: Current Year Capital Additions	-	(18,278.0)	(1,164.0)	-	-
Construction Work in Progress - Current Year Balance	**12,699.2**	**1,657.2**	**3,314.4**	**4,971.6**	**27,569.7**

6.0 Cost of Service, Rate Design and Revenue on Proposed Rates

The traditional regulatory approach in setting end use customer rates in the utility industry typically involves the preparation of a cost of service study which includes the grouping of the utility's customers into unique customer classes. The cost of service study then sets out to allocate the utility's total forecast revenue requirement to each of those customer classes based on well established cost functionalization, classification and allocation methodologies. End use customer rates are then designed to fully recover the forecast revenue requirement allocated to each of those customer classes. The resulting forecast revenue derived from the end use customer rates recovers the utility's total annual forecast revenue requirement.

The Utility is in its initial year of operations and will be interconnecting its first customers late in 2019. In respect of the 2020 end use customer rates for the Utility, the Fiscal Policy provides direction in regards to the design of such rates in that "All customer charges will be based upon cost of service with **the end user (customer) paying at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs**." This concept of BREU customers paying at most a comparable fee to what they would elsewhere in the City, or "Business as Usual" ("BAU"), is a key principle in ultimately determining the end use customer rates in this 2020 Rate Filing. This BAU principle will be discussed further below and in Grant Thornton's Rate Review in Appendix 1. The combination of the Utility being in its initial year of operations, with the first customers not being connected until late 2019, and the Utility being limited to charging its customers end use rates set at no more than what they would pay elsewhere in the City (i.e. BAU) results in the Utility being unable to recover its total forecast revenue requirement in 2020. As shown in Table 2 above, there is a shortfall of approximately $1,156,500 in 2020 between the 2020 forecast revenue requirement and the 2020 forecast customer revenue.

6.1 Cost of Service Study

For the purpose of this 2020 Rate Filing, a traditional cost of service study was not completed for several reasons. Firstly, using the BAU approach to set end-use customer rates renders a

traditional cost of service study somewhat meaningless in that end use rates are designed based on the BAU concept/principle and are not designed to recover the total revenue requirement allocated to each rate class. Secondly, there is only one type of traditional end use customer (i.e. residential) connecting to the BREU system during forecast period so a cost of service study that allocates costs to BREU's customer classes is, again, meaningless for 2020 as there is only one customer class. While there are two separate fixed charges for the BREU's residential customers (one for townhomes and another for condominiums/apartments) as described in the Rate Design section below, the reason for those separate charges is as a result of utilizing the BAU concept/principle and not necessarily due to cost differences in serving these two types of residential customers. Thirdly, given that the Utility is in its first year of operations there is, at best, very limited data available with respect to essential information required to complete a cost of service study such as consumption data/patterns for the various types of customers and information with respect to the impact (from both design and operational perspectives) of the various types of customers on the BREU system.

It is expected that a full cost of service study will be completed once actual detailed customer consumption data has been collected and some experience from operating the BREU system has been gained. In addition, as the Utility grows and matures it is expected that there will be a transition from utilizing a BAU approach to a more traditional cost of service approach as the basis for designing end use customer rates. In future rate filings the Utility will endeavor to move towards reflecting cost causation principles in the design of end use customer rates wherein those rates will closely reflect the costs actually caused by the different types of customers connected to the system.

6.2 Rate Design and Proposed End-Use Customer Rates

End-Use Rates

The Blatchford Utility 2019 Annual Rate Filing established the regulatory framework and customer rates for the initial year of operation of the Blatchford Utility. The 2019 Rate Filing was guided by the overarching Policy Statement contained in the Blatchford District Energy Utility Fiscal Policy:

> "Similar to private utilities, the Utility will account for the cost of services under a full cost accounting approach. All customer charges will be based upon cost of service with the end user (customer) paying at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs."

Under a traditional Cost of Service approach, customer rates are established to allow the Utility to recover its annual costs to operate the utility ("revenue requirement"). However, given the small number of Blatchford residents and utility customers in the first few years of operation, customer rates established using the Cost of Service approach would result in rates being significantly higher than comparable fees paid elsewhere in the City of Edmonton, and what Blatchford utility customers could reasonably be expected to incur. Therefore, an alternative method to set customer rates for 2019 and in the initial years of development and operation of the Utility was required.

In order to develop the customer rates for 2019, Administration engaged Grant Thornton to assist in establishing the regulatory framework and identifying and quantifying customer rates using alternative methodologies. The customer rates proposed in the Blatchford Utility 2019 Annual Rate Filing, and ultimately approved by City Council, were based on Grant Thornton's recommendation to utilize a "pegged" approach to establish customer rates. Under this approach, Blatchford utility bills were pegged to what utility bills would be elsewhere in the City of Edmonton. Grant Thornton determined the typical utility bill ("Business as Usual") in 2019 for heating, cooling, and hot water that would be paid elsewhere in the City of Edmonton for the types of dwellings that are to be built in the initial stages of the Blatchford development. In accordance with the Fiscal Policy, differences in the annualized maintenance costs to be paid by Business as Usual and Blatchford utility customers were also included as adjustments to the typical Business as Usual bills. One variable rate for all Blatchford Utility customers and two separate fixed rates, one for Townhouse customers and another for Condo/Apartment customers, were then derived that resulted in Blatchford Utility bills being comparable to the adjusted Business as Usual bills in 2019.

In helping to establish the 2019 customer rates, the Utility gave consideration to the rate design principles established by Dr. James Bonbright[1]. These principles are summarized below:

- Rate attributes: simplicity, understandability, public acceptability, and feasibility of application;
- Freedom from controversies as to proper interpretation;
- Effectiveness of yielding total revenue requirements;
- Revenue (and cash flow) stability from year to year;
- Stability of rates themselves, minimal unexpected changes that are seriously adverse to existing customers;
- Fairness in apportioning cost of service among different consumers;
- Avoidance of undue discrimination;
- Efficiency, promoting efficient use of energy and competing products and services.

Dr. Bonbright's rate design principles have been used to guide utilities in setting end use customer rates in regulatory proceedings for many years and, where applicable, have been used to guide the design of the end-use customer rates in this 2020 Rate Filing.

In order to assist in establishing customer rates for the Blatchford 2020 Rate Filing, Administration engaged Grant Thornton to calculate 2020 customer rates using the 2019 pegged approach methodology and incorporating updated data and assumptions.
The first step in the pegged approach is to determine the BAU bills for 2020. Grant Thornton utilized the framework/methodology developed for the 2019 Rate Filing but revised the following data and assumptions in order to determine the appropriate BAU bills for 2020:

1. The 2019 BAU calculation utilized a five year contract for determining the BAU electricity costs whereas the 2020 BAU calculation utilizes the current electricity Regulated Rate Option (RRO). Utilizing the current electricity RRO results in a lower BAU electricity bill than utilizing current fixed retail contracts and it as assumed that a rational customer would choose an electricity plan that would result in the lowest cost.
2. The latest forecasts (third quarter 2019) of long term natural gas and electricity prices.

[1] "Principles of Public Utility Rates", James C. Bonbright, Columbia University Press, 1961.

3. The latest build out projections for the Blatchford Community which includes the addition of only fee-simple townhomes in 2020, as compared to the build out used in the 2019 filing which included the addition of all four residential customer types (fee-simple townhomes, strata townhomes, 4-6 story apartment buildings and 7-10 story apartment buildings).
4. The 2020 BAU calculation utilizes a carbon tax of $30/tonne, the current Federal carbon tax rate, while the 2019 BAU calculation utilized a carbon tax of $35/tonne (the Alberta carbon tax that was in effect in September 2018 and subsequently repealed in March 2019).

The following table provides a summary of the annual BAU bill and maintenance cost amounts for each type of customer;

Table 12 - Summary of Annual BAU Bill and Annual Maintenance Costs for a Typical Customer ($)

Customer Class	Annual BAU Bill Amount	BAU Maintenance Costs	BREU Maintenance Costs	Differential	Target BREU Annual Bill Amount
	(1)	(2)	(3)	(4)	(5)
				=(2) - (3)	=(1) + (4)
Simple Townhome	$ 1,490	$ 283	$ 425	$ (142)	$ 1,348
Strata Townhome	$ 1,500	$ 294	$ 455	$ (161)	$ 1,339
4-6 Story Apartment	$ 918	$ 444	$ 297	$ 147	$ 1,065
7-10 Story Apartment	$ 1,067	$ 444	$ 297	$ 147	$ 1,214

Once the 2020 BAU bills were determined, Grant Thornton then utilized the same methodology that was established for the 2019 Rate Filing, described above, to determine customer rates for 2020.

As an alternative to 2020 customer rates based on the pegged approach, Grant Thornton also calculated the impact of escalating 2019 approved rates by 2.7 percent. The 2.7 percent multiplier is what was used in the City of Edmonton Blatchford Business Decision/Financial Model to escalate rates each year. The Business Decision/Financial Model noted that rate stability is a key utility rate setting principle, and utilized a levelized approach to design rates and ensure rate stability whereby customer rates were increased by 2.7 percent on average annually over the initial 50 years.

The table below shows a comparison between the approved 2019 rates, the 2020 calculated rates based on the pegged approach and the 2020 rates based on an escalation of the 2019 approved rates by 2.7 percent.

Table 13 - Comparison of Approved 2019 Rates with 2020 Rate Options

Rate Component		Approved 2019 Rate	Calculated 2020 Rate	2020 Rate (escalated 2019 Rate)
Fixed Charge ($/day)				
	Townhomes	1.43	1.54	1.47
	Apartments	1.12	1.17	1.15
Variable Charge ($/kWh)		0.0248	0.0263	0.0255

The following table compares the monthly Blatchford thermal energy bill for the average customer in each customer class based on the approved 2019 rates, and the percentage increase in the monthly energy bill for both the 2020 calculated rates based on the pegged approach and the 2020 rates based on an escalation of the 2019 approved rates by 2.7 percent.

Table 14 - Comparison of Average Monthly Bill on Approved 2019 Rates and 2020 Rate Options

Customer Class	Average Monthly Bill on 2019 Approved Rates ($/month)	% Increase in Monthly Bill on 2020 Calculated Rates	% Increase in Monthly Bill on 2020 Escalated Rates
Fee-Simple Townhomes	58.12	7.3%	2.7%
Strata Townhomes	58.44	7.3%	2.7%
4-6 Story Apartment	46.45	4.9%	2.7%
7-10 Story Apartment	49.38	4.9%	2.7%

Administration is recommending that 2020 customer rates be established based on the approved 2019 customer rates escalated by 2.7%. This approach results in customer rates for 2020 that are:

- comparable to the 2020 rates determined in the Business Decision/Financial model upon which the $93 million non-refundable cash infusion and the Blatchford Utility Fiscal Policy key financial indicators were established;
- consistent with the Blatchford Utility Fiscal Policy that requires stable consistent rate increases;
- lower than rates based on the pegged approach and therefore in accordance with the Blatchford Utility Fiscal Policy that customers pay at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs;
- relatively simple to understand and implement; and
- comparable to the stable and consistent rate increases for other utility services in Edmonton including Waste Services (2.5% average annual increase projected from 2019

to 2022) and Drainage Services (3% average annual increase for January 1, 2018 to March 31, 2022 as prescribed in Bylaw 18100).

The proposed customer rates for 2020 are summarized in the table below:

Table 15 - 2020 Proposed BREU Customer Rates

Rate Component		2020 Rate
Fixed Charge ($/day)		
	Townhomes	1.47
	Apartments	1.15
Variable Charge ($/kWh)		0.0255

BREU Rate Schedules with the proposed end use customer rates have been included in Appendix 5.0.

As the Utility grows and matures and more operational information and consumption data become available, the Utility will investigate alternatives in future rate filings to the single rate class, two component rates proposed in this Rate Filing, such as:

- Splitting the current single rate class into separate townhome and apartment rate classes,
- Adding rate classes as different end use customers (e.g. commercial/retail/office, institutional (e.g. NAIT), industrial, etc.) connect to the DESS operated by BREU,
- The option of setting rate classes based on a size (MW) or consumption (MWh) differentiation rather than end use,
- Implementing separate rate components for heating and cooling,
- Implementing a seasonal or time of use component,
- Adding a demand (e.g. $/kW) component to certain rate classes to encourage efficient use of the system
- Utilizing an inclining block variable charge to encourage conservation.

Infrastructure Fee

As outlined in the 2020-2023 Business Plan and the 2019 Rate Filing, the Utility has implemented an Infrastructure Fee to charge the builders that connect residences and commercial developments to the DESS. For residential units, an infrastructure fee for 2019 of $1,750 per unit was approved and is currently in place. For each commercial development, the infrastructure fee is $20 per square meter of floor space. This fee creates an additional source of revenue for the Utility that would otherwise need to be funded by Utility rates or the non-refundable cash infusion. In the Blatchford Utility Business Decision Model, the first set of builders were projected to connect in 2019 with none connecting in 2020. Based on the most recent land development update for the Blatchford community, the first set of builders are now projected to begin connecting to the District Energy Sharing System late in 2019 and continuing into 2020. Therefore, the Utility is proposing to leave the current infrastructure fee in place for 2020. The Infrastructure Fee for 2020 is summarized in the table below:

Table 16 - 2020 Proposed Infrastructure Fee

Infrastructure Fee	2020 Fee
Residential - all ($)	1,750
Commercial ($/m^2)	20

The proposed Infrastructure Fee Schedule is included in Bylaw 17943, Blatchford Renewable Energy Utility Bylaw.

6.3 Revenue on Proposed Rates

Rate Revenue

The proposed rates for 2020, as discussed above, were applied to the 2020 forecast customer billing determinants (i.e. number of customers/accounts and total consumption) to derive the 2020 forecast rate revenue. Consistent with the Blatchford Utility Business Decision Model, the proposed 2020 customer rates were increased by 2.7% per year for 2021 and 2022 and applied to the forecast billing determinants for the appropriate year. **The Utility is seeking approval for only the 2020 end use customer rates in this Rate Filing**.

Infrastructure Fee Revenue

The proposed Infrastructure Fee, as outlined above, was applied to the 2020 forecast number of customer connections to derive the 2020 forecast Infrastructure Fee revenue. Consistent with the Blatchford Utility Business Decision Model, the proposed 2020 Infrastructure Fee was increased by 2% per year for 2021 and 2022 and applied to the forecast number of new customer connections for the appropriate year. **The Utility is seeking approval for only the 2020 Infrastructure Fee in this Rate Filing**.

The following table summarizes the forecast Rate Revenue and Infrastructure Fee Revenue for the 2019-2022 forecast period.

Table 17- Forecast Rate and Infrastructure Fee Revenue

	2019	2019	2020	2021	2022
Item	Approved Budget	Current Forecast	Proposed Rate Filing	Current Forecast	Current Forecast
Revenue					
Rate Revenue	77.2	1.3	24.1	169.2	447.2
Infrastructure Fee Revenue	458.5	17.5	75.3	776.5	855.7
Total 2019 Revenue	**535.7**	**18.8**	**99.3**	**945.7**	**1,303.0**

6.4 Deferral Account and Interest on Financing

As shown in Table 2 in Section 5 above, the Utility will realize a revenue shortfall each year during the 2019-2022 forecast period. Section 2.1 C of the Fiscal Policy states: “Where the Utility’s cash position is insufficient to meet cash flow requirements, the Utility will borrow from

the City of Edmonton on a short term basis, with the interest being paid by the Utility at an interest rate that compensates the City of Edmonton reflecting the Fund Balance were the cash was drawn." Accordingly, it is assumed that the annual revenue shortfall during the 2019-2022 forecast period will be financed by short-term debt obtained from the City of Edmonton at a rate of 2.5% for 2019, increasing by 0.25% per year over the 2020 to 2022 forecast period. The annual revenue shortfall amount and the interest expense associated with the deferral account balance each year are shown in the table below.

Table 18 - Annual Revenue Shortfall and Interest Expense

	2019	2020	2021	2022
Item	Current Forecast	Proposed Rate Filing	Current Forecast	Current Forecast
Total Revenue	18.8	99.3	945.7	1,303.0
Total Revenue Requirement	750.9	1,255.8	1,468.8	1,453.5
Annual Revenue Surplus (Shortfall)	(732.2)	(1,156.5)	(523.1)	(150.5)
Deferral Account Opening Balance	-	(741.3)	(1,934.1)	(2,523.1)
Annual Revenue Surplus (Shortfall)	(732.2)	(1,156.5)	(523.1)	(150.5)
Deferral Account Closing Balance	(732.2)	(1,897.8)	(2,457.2)	(2,673.6)
Annual Interest Costs	**(9.2)**	**(36.3)**	**(65.9)**	**(84.4)**
Deferral Account Closing Balance Including interest Costs	**(741.3)**	**(1,934.1)**	**(2,523.1)**	**(2,758.0)**

It is expected that as the Utility grows and more customers are connected to the system that annual customer revenue will exceed the Utility's annual revenue requirement and the debt obtained to cover the deferral account balance will eventually be paid back to the City of Edmonton.

6.5 Bylaw 17943

The purpose of this bylaw is to:

(a) Regulate connections between building mechanical systems and the Blatchford district energy sharing system;
(b) Regulate access to the Blatchford district energy sharing system;
(c) Prevent damage or misuse of the Blatchford district energy sharing system; and
(d) Prescribe fees and charges related to the Blatchford district energy sharing system.

Bylaw 17943 was approved by City Council in December 2018. Schedule B of Bylaw 17943 contains the Customer Rates and Infrastructure Fee for 2019. Financial and Corporate Service Report CR_7637, to be presented at the November 1, 2019 Utility Committee Meeting, recommends the approval of Bylaw 19062, to amend Blatchford Renewable Energy Utility Bylaw 17943 to reflect the new fees and charges outlined in this Rate Filing effective January 1, 2020.

7.0 Appendices

- Appendix 1.0 - Grant Thornton Study
- Appendix 2.0 - Blatchford District Energy Utility Fiscal Policy C597
- Appendix 3.0 - Blatchford Renewable Energy Utility 2020-2023 Business Plan
- Appendix 4.0 - Minimum Filing Requirements Schedules
- Appendix 5.0 - Proposed Rate Schedules

Blatchford Renewable Energy Utility

City of Edmonton

Blatchford District Energy Rate Review

October 15, 2019

Contents

1. Executive Summary

The City of Edmonton (the City or COE) retained Grant Thornton LLP (Grant Thornton) to assist in establishing end use customer rates for the Blatchford District Energy Utility in 2020 by updating and reevaluating the end use customer rates developed by Grant Thornton in 2018 for purposes of the 2019 Blatchford Rate Filing (2019 Rate Filing). The report contained herein discusses the approach used to determine the updated customer rates for 2020 based on the Grant Thornton approach used in the 2019 Rate Filing, inputs from the City of Edmonton's Business Decision Model (COE Financial Model), the principles contained in the Blatchford District Energy Utility Fiscal Policy (Policy Number C597, March 22, 2018), discussions held with the City of Edmonton, and secondary research as it pertains to establishing rates in a district energy system. Based on information provided and obtained, Grant Thornton has calculated updated rates for 2020 based on the approach used to develop the 2019 Rate Filing model.

The revised rates are built upon the comprehensive rate setting undertaken in 2018. The initial step taken for this engagement was to gather revised base rates for energy - Gas and Electricity - and the respective forecast for annual growth rates. Traditionally, utility rates are determined using a cost of service approach. This approach establishes rates based on the allocation and recovery of a utility's annual costs, referred to as its revenue requirement. The COE Financial Model was developed on a cost of service approach which prescribes stable and consistent annual rates increases of 2.7 per cent over the next 50 years. This approach uses levelized rate calculations by calculating an initial year rate with a fixed annual growth percentage, which over time, is able to recover the utility's long-term revenue requirement. However, over the initial years, the small number of customers forecast in Blatchford would likely be unable to pay the full cost of service during this time. Moreover, as prescribed in the Blatchford Fiscal Policy, customer rates cannot exceed their Business as Usual (BAU) equivalent defined as what they would pay elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs.

In continuation of the approach used to determine the rates in the 2019 Rate Filing, Blatchford customer bills are pegged to their BAU equivalent bills. This approach ensures that the customers pay, at most, a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs, thereby aligning to the Fiscal Policy. Moreover, the pegged approach is simple to implement and can easily be understood by customers. Unlike the lifecycle cost and hybrid approaches, a pegged approach does not use long-term assumptions, which are subject to change, based on the Utility's future.

For the purposes of the analysis, only the two sub classes - simple town homes and 4-6 story condos - are forecast to be present for the initial years (between 2020-2023) in Blatchford. Specifically, the build out projections for year 2020 forecast a build out of only the simple town home customer class. The projections from year 2021 to year 2023 include projections for 4-6 story condos as well. In order to maintain consistency, transparency and fairness in the end user rates, Grant Thornton calculated BAU annual utility bills for each of the four residential customers using assumptions present in the COE Financial Model. Using the methodology developed for the 2019 Rate Filing, the estimated usage of electricity and gas to meet customers' heating, cooling, and domestic hot water requirements was kept consistent for calculating the BAU utility bills. The commodity requirements (i.e. heating, cooling and domestic hot water requirements) in MWh are impacted by the buildout projections of the customer classes. These commodity requirements were kept consistent by taking a simple ratio between the buildout projections for 2020 Rate Filing model and those for 2019 Rate Filing model. An annual BAU bill adjusted for the maintenance differential (due to differences in annualized customer maintenance costs to be paid by BAU and Blatchford customers) was created for all four customers, and was considered the amount that customers in Blatchford should also pay for their annual utility bills.

It was determined that a 35/65 variable/fixed ratio continues to mirror the cost structure of the Utility to support predictability in revenues. The ratio also ensures fairness to customers in high and low energy use scenarios. In order to calculate the variable component of the Blatchford rate, the total required variable charge amount (i.e. representing 35% of the adjusted BAU bill amounts), was divided by the anticipated usage across all customer classes. The 2019 Rate Filing proposed a single variable rate for all customer classes. Similarly, a single variable rate is proposed for all customer classes in the 2020 Rate Filing.

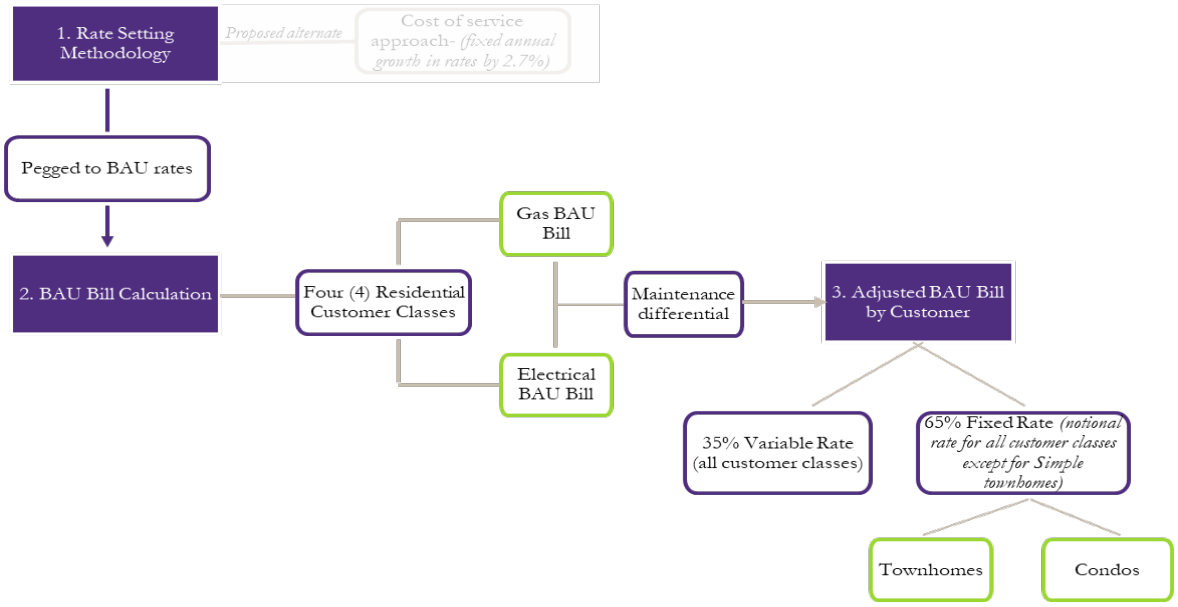
The fixed component of the Blatchford rate was then assigned the remaining 65% of the adjusted BAU bill amounts. It is important to note that although there are no projections for strata town homes, 4-6 story condos and 7-10 story condos in 2020, notional fixed rates for these customer classes were established using energy use assumptions from the methodology utilized in the 2019 Rate Filing. This approach ensures uniformity in the established rates and allows accommodation of any change in the build out projections in the model. Specifically, the remaining fixed charges (i.e. BAU bills less the deemed variable charge) were averaged between the two town home and condo types in order to determine fixed charges. These annual fixed charge amounts were then divided by 365 to determine daily fixed rates. In order to maintain fairness in rates and support practical rate implementation and billing over initial years, two fixed rates were calculated: one for town homes, and one for condos. Total bills as compared to BAU (including the maintenance adjustment) are presented below for the forecast year 2020. Note that the low variances support that Blatchford customers would be expected to pay similar utility bills (after adjusting for maintenance costs) to that of their BAU counterparts elsewhere in the City.

Customer Class:	Blatchford DE Bill	BAU Bill	Variance
Simple Town Home	$1,345	$1,348	(0.2)%
Strata Town Home	$1,353	$1,340	1.0%
4-6 Story Condo	$1,132	$1,064	6.4%
7-10 Story Condo	$1,179	$1,214	(2.9)%

The calculated rates for 2020 are summarized in the following table:

Customer Class:	Variable Rate	Fixed Rate
Town Homes	$0.0263/kWh	$1.54/day
Condos	$0.0263/kWh	$1.17/day

Sensitivity analysis was performed to determine the impact of these rates on higher and lower use customers, as well as analysis on the use of alternative fixed/variable ratios. This sensitivity analysis suggested that Blatchford customers' bills would be within a reasonable degree of variance as compared to their adjusted BAU bill equivalents. The following illustration presents the steps taken for the rate methodology described above.



As an alternative to the approach discussed above, Grant Thornton also calculated the 2020 end user customer rates for the Blatchford District Energy System by increasing the 2019 approved customer rates by 2.7 percent as per the COE Financial Model. In concurrence with City's administration, Grant Thornton notes that this approach would achieve increased rate stability and would also be an acceptable alternative to revise end use customer rates annually. The rates for 2020, based on a 2.70 per cent increase in 2019 approved customer rates, are as follows:

2020

Customer Class:	Variable Rate	Fixed Rate
Town Homes	$0.0255/kWh	$1.47/day
Condos	$0.0255/kWh	$1.15/day

2. Authorship and Document Purpose

This report is prepared by Grant Thornton LLP (Grant Thornton) for the City of Edmonton (the City or COE). This report is based on information and documentation that was made available to Grant Thornton as well as information obtained from third party sources prior to the time of drafting the report. Much of the information was gathered from interviews with and documents provided by COE management and key staff as well as secondary research. As such, Grant Thornton assumes no responsibility and makes no representations with respect to the accuracy or completeness of any information provided to us. We are not guarantors of the information which we have relied upon in preparing our report, and except as stated, we have not attempted to verify any of the underlying information, assumptions, data contained in this report. It is understood and agreed that all decisions in connection with the information as presented in this report shall be the responsibility of, and be made by the City.

This report is confidential. It was prepared for the City in relation to rate policy. This report is not to be used for any other purpose, and we specifically disclaim any responsibility for losses or damages incurred through use of this report for a purpose other than as described. Calculations presented in this report are based on information available and provided to us during the time of creating the report. As such, appropriate considerations should be made as to update the calculations should new and updated information become available. This report is not intended to review or comment on the economic viability of the Utility. We reserve the right, but are under no obligation, to review all calculations included in or referred to in this report and, if we consider it necessary, to revise calculations in light of any information existing at the date of issue that subsequently becomes known to us. *The report is provided in draft form, and is subject to further changes. It has been released for the sole purpose of obtaining all comments with respect to errors, omissions, misinterpretations or other factors.*

3. Introduction

Background

The City of Edmonton retained Grant Thornton to assist in establishing end use customer rates for the Blatchford District Energy Utility in 2020 by updating and reevaluating the end use customer rates developed by Grant Thornton for the Blatchford 2019 Rate Filing, the first year of operation of the Blatchford District Energy Utility. The engagement primarily includes revisiting and updating the input assumptions of the model developed by Grant Thornton for the 2019 Rate Filing and determining the end use customer rates for Blatchford District Energy Utility in year 2020.

Approach

For the 2019 Rate Filing, Grant Thornton assessed rate setting requirements through discussions with City of Edmonton management, review of relevant policies, reports, bylaws and utilities act, the 2019-2022 Blatchford Business Plan, and analysis of the City of Edmonton's Business Decision Model (COE Financial Model). This year, Grant Thornton leveraged the previously established framework in order to determine the rates for 2020. Based on the above, the following key input assumptions were re-evaluated and revised to formulate transparent and fair end use customer rates by using a methodology consistent with that used in 2019 Rate Filing

1) Baseline energy rates for Gas and Electricity in 2019
2) Projected energy growth rates for Gas and Electricity prices over the next one (1) year
3) Build out projections for the different customer classes under consideration
4) Carbon tax

In answering these questions, Grant Thornton conducted secondary research through review of publically available reports for various district energy utilities. All input variables pertaining to commodity use requirements, forecast energy consumptions, etc. used in the calculation of the 2020 customer rates are consistent with those used to develop the 2019 rates. Further information, including, revised build out projections, was provided by City of Edmonton management, and certain information, including the forecast of Carbon Tax, was sourced from the public domain.

4. Initial Year Rate Setting

Selected Approach

Based on analysis performed in the 2019 Rate Filing model, Grant Thornton believes that a pegged rate approach continues to be an appropriate methodology in rate setting, wherein, **customer bills are pegged directly to their BAU counterparts.** In the comparable district energy utilities identified, the BAU was generally defined as follows: the total costs incurred by a customer for equivalent services provided by standard utility providers. For most other district energy utilities, this definition assumes that customers have the same utility requirements, and are located in the same (or similar) building, and in the same (or similar) region.

Under this approach, rates are to be calculated such that the total bill amount should approximately equate to the BAU bill. The selection of this methodology is largely due to the simplicity of application and inputs, allowing for easy customer understandability, perceived fairness in rates, and alignment with the Blatchford Fiscal Policy.

Customer Classes

Based on the revised Blatchford build-out projection assumptions provided by the City, only one traditional end use customer type (i.e. residential customers- simple town homes) has been considered for the 2020 Rate Filing. During the four years (2020-2023) of the provided build-out projections, there are only two categories of residential customers forecast to be present in Blatchford: simple town homes and 4-6 story condo units. However, as part of the analysis, notional end use customer rates for strata town homes and 7-10 story condo units have also been determined. Given the change in build out projections in this year, these notional rates were determined on the basis of assumptions used in the 2019 Rate Filing model. This level of specificity is consistent with the 2019 Rate Filing model and the COE Financial Model, and allows for appropriate BAU bill comparisons.

Revisions in the 2019 Rate Filing model

For the 2019 Rate Filing, Grant Thornton developed a framework for determining end use customer rates for the Blatchford District Energy. This year, Grant Thornton revisited all the assumptions and determined the changes in inputs that would impact the end use customer rates for year 2020. Primarily, input assumptions for *Baseline energy rates for Gas and Electricity, Annual growth rate forecast for energy rates, Build out projections* for the four residential customer classes, and projected *Carbon tax rates* have been revised. Due to certain revisions in the input assumptions, some aspects of the approach have been revised as follows:

1. **Determination of baseline electricity rates (fixed and variable) for 2019:** The methodology to determine the baseline energy rates are premised on a rational customer choosing a utility plan option which would minimize his or her annual utility bill. In the 2019 Rate Filing model, the baseline electricity rates were based on five (5) year contract rates published by Direct Energy rather than on Rate Regulated Option (RRO) rates as the five (5) year contract rate option was cheaper than the RRO. However, as per the baselines rates in 2019, a customer would pay less on the RRO than on the five (5) year contract rate option. Therefore, the RRO published by Direct Energy are used to calculate baseline rates in 2019. Refer to Appendix 1 for the baseline rates in 2019.
2. **Annual growth rate forecast for energy rates:** A key determinant that influences the projected end use customer rate for Blatchford District Energy System is the annual growth factor (%) applied to the baseline energy rates ($). A notable increase in the annual growth rate occurred in the Variable Electricity Rate wherein the projected annual growth rate grew from 1.4 per cent (used for 2019 Rate Filing) to 3.3 per cent (used for 2020 Rate Filing), translating to a greater than 100 per cent increase in the growth rate. Refer to Appendix 1 for the revised annual growth rate forecast and changes in the growth forecasts from the 2019 Rate Filing model.
3. **Build out projections for the residential customers:** Unlike in 2018, the build out projections in 2019 forecast zero (0) 4-6 story condos, 7-10 story condos and Strata town homes. This change has had an impact on two metrics:
    - **a.** *Commodity requirements*: The build out projections are directly co-related to the commodity requirements (cooling, heating and domestic hot water). In order to maintain the relationship between build out projections and commodity requirements as per the 2019 Rate Filing model and the COE Financial Model, a ratio between buildout out projections in 2018 and projections in 2019 was applied to the commodity requirements from the 2019 Rate Filing model. This ensured that the energy use output for the BAU remained unchanged from the 2019 Rate Filing model.
    - **b.** *Levelization of fixed and variable rates across customer classes:* The methodology to determine end use customer rates (fixed and variable) 2019 Rate Filing model involved consideration of all the four (4) sub categories of the residential customer class. The projected end use customer rates for year 2020 are established on the basis of energy use assumptions determined in the 2019 Rate Filing model. A change in build out projections in 2019 has had an impact on the approach used to determine end use customer rates. Since there are no build out projections for 4-6 story condos, 7-10 story condos and Strata town homes for year 2020, the end use customer rates for these sub-categories of the residential customer class are notional in nature. The

notional rates are then used to average out the fixed rates among the town home and condos categories respectively. Refer to Appendix 1 for the revised build out projections.

4. **Carbon tax rate:** The Carbon tax rate contributes to the BAU bill and is only applied to natural gas bills. While the carbon tax was abolished in Alberta with effect from June 01 2019[1], the revised model assumes that the federal government would remain unchanged in 2020 and a proposed federal carbon tax of $30 per tonne of carbon emission will come into effect from January 01, 2020[2]. The projections for the proposed federal Carbon tax rate until 2023 can be found in Appendix 1.

BAU Build-Up

Similar to the approach used to determine the BAU bills for the 2019 Rate Filing, the BAU equivalent bills for each customer type (simple town homes, strata town homes, 4-6 story condos, and 7-10 story condos)[3] were determined. BAU bills take into account assumed electricity and natural gas requirements to achieve equivalent heating, cooling, and domestic hot water outputs to that provided by the District Energy Utility. Inputs and assumptions are largely taken from the COE Financial Model, as well as regulatory posted rates, and publically available rate information for utility companies. Detailed inputs and sources are outlined in Appendix 1. The BAU rates used for the 2020 Rate Filing include the Rate Regulate Option (RRO) as opposed to the 5 year contract rates used for the 2019 Rate Filing. As elaborated in the subsection *Revisions in the 2019 Rate Filing model,* the approach is based on the logic that a rational consumer would select an economical rate option in order to minimize his/her utility expenditure. The electricity rates utilized are Direct Energy's published rates. The other BAU build-up includes low use gas rates for town homes, and high use gas rates for condos[4] and these are ATCO Gas's published rates. In 2020, the estimated variable electricity rate under an RRO option is approximately $0.129/kWh of electricity usage, expected gas rates are $0.0191/kWh ($5.31/GJ) of gas usage for low use customers, and $0.012kWh ($3.39/GJ) for high use customers[5].

In building up to the total bill, the expected electricity usage was multiplied by expected electricity rates, and expected gas usage was multiplied by expected gas rates. These usage estimates are consistent with the energy consumption estimates used in the 2019 Rate Filing model and the COE Financial Model. The estimates include the usage associated with heating, cooling and domestic hot water (i.e. electrical usage associated with other uses such as lighting, operating appliances, etc. is not included as this is not provided by the District Energy Utility). Expected annual electricity and gas usage in 2020 for a simple town home for example, are 388 kWh and 22,240 kWh respectively under the BAU scenario. Gas usage was also used to determine the equivalent CO_2 emissions in order to calculate required carbon tax payments. Gas usage was converted at a rate of 0.18 tonnes of CO_2/MWh of gas, resulting in emissions of 4.08 tonnes in 2020. At $30/tonne, this results in an annual carbon tax charge of $122[6]. The sum of these variable costs was taken to determine a total variable component of BAU bills.

To determine the fixed component of bills, daily fixed rates for electricity and gas connections (reduced to incorporate any inclusion adjustments- specifically adjustments made on the basis of a ratio between (1) connection and number of connections present in a condo building as per the COE Financial Model, - please refer to Appendix 3D) were multiplied by 365 to determine their annual impact. The annual 2020 fixed charge for electricity is expected to be $312 per connection, with each customer assumed to have 1 connection, regardless of class, as per the COE Financial Model. Gas fixed charges are estimated at $1.59/connection/day for low use customers, for

[1] Government of Alberta website, Carbon levy and rebates, September 19 2019
[2] Government of Canada website, Backgrounder: Proposed Application of the Federal Carbon Pollution Pricing System in Alberta, September 19 2019
[3] While this engagement's scope pertains to 2020 customer rates, a four year time horizon was used for the calculations and analysis. Within this period there are two customer types identified in the City's build-out forecast for Blatchford.
[4] Rates as per ATCO Gas and Direct Energy Regulatory services, detailed rate build up is shown in Appendix 3H (source: ATCO Gas Current Rates, accessed July 2019, Direct Energy Regulatory Services Current Natural Gas Rates, accessed July 2019).
[5] As further detailed in Appendix 3, variable gas rates are converted from $/GJ to $/kWh using a factor of 277.78. This was done as thermal rates charged by the District Energy utility are measured in $/kWh.
[6] Carbon tax is only applied to natural gas bills; no carbon tax is applied to electricity bills (source: COE Financial Model Assumption's List; Carbon Levy and Rebates, Government of Alberta, accessed July, 2019).

a fixed charge of $581 per customer annually. For high use customers, this charge increases to $8.18/connection/day, which is reduced on a per customer basis based on the number of customers served by each connection. In a 4-6 story condo, each gas connection is to serve 60 units, while in a 7-10 story condo 5 connections will serve every 85 customers i.e. one (1) connection will serve 17 customers. As a result of this adjustment, the fixed charge for natural gas is $50 per year for a single 4-6 story condo unit, and $174 per year for a single 7-10 story condo unit. This fixed component is added to the variable component calculated above to determine a total billed amount. A build-up of an estimated typical simple town home's annual bill in year 2020 is shown below for reference.

Usage, Fees, and Charges		2020	
Description		Amount	
Gas Usage		22,240	kWh
Current Gas Rates	$	0.0191	/kWh
Variable Gas Charge	**$**	**425**	
Equivalent Gas CO2 Rate		0.1836	tonnes/MWh
Equivalent CO2		4.08	tonnes
Carbon Tax Rate	$	30.00	/tonne
Carbon Tax	**$**	**122**	
Electricity Usage		388	kWh
Current Electricity Rates	$	0.1290	/kWh
Variable Electricity Charge	**$**	**50**	
Total Variable Charges	**$**	**597**	
Fixed Gas Rate	$	1.5913	/day
Fixed Electricity Rate	$	0.8547	/day
Fixed Charge	**$**	**893**	
Total Due	**$**	**1,490**	

Maintenance Cost Differential

The bill above is not adjusted for any associated maintenance costs. The Fiscal Policy makes reference to the inclusion of maintenance costs, and as such, bill amounts should be adjusted to reflect any differential in maintenance costs between the Blatchford and BAU customers. For instance, a simple town home in Blatchford is expected to incur on average $425 in maintenance costs each year, while under the BAU these maintenance costs are only $283[7]. Therefore, the annual bill of $1490 above must be reduced by the differential of $(143) to achieve the same total annual utility bill and maintenance costs for a town home. For condos, estimated customer maintenance costs are expected to be higher under the BAU than within Blatchford, and as such, bills are adjusted upwards in order to achieve equivalent all in costs. For example, both 4-6 Story and 7-10 Story Condo bills in BAU are increased by $147 to reflect the fact that maintenance costs in Blatchford ($297) will be lower under the BAU ($444)[8]. Similar adjustments are made to all customer classes in order to determine the respective BAU bills. Maintenance costs referenced are taken from the COE Financial Model, which details end user maintenance costs expected[9]. The maintenance differential amounts in the 2020 Rate Filing model are the same as differential

[7] Maintenance costs are based on the average annual maintenance cost for each customer class over the projection period included in the COE Financial Model. (Source: COE Financial Model)
[8] Maintenance costs are taken directly from the COE Financial Model. Under the model's assumptions end user maintenance costs are not expected to differ between different types of condo units in either the BAU scenario or within Blatchford. (Source: COE Financial Model).
[9] As noted, end user maintenance for townhome customers are forecast to be higher for Blatchford customers as compared to BAU customers, while condo customers' maintenance costs are forecasts to be lower in Blatchford. BAU townhomes have lower cost mechanical systems compared to Blatchford townhomes, and maintenance expense forecasts used in the COE Financial Model are largely based on capital costs. Furthermore, heat pump water heaters, for example, would have more

amounts used in the 2019 Rate Filing model. The following table details the adjustments made to bills for each customer class.

Customer Class:	Unadjusted BAU Bill	BAU Maintenance	DESS Maintenance	Maintenance Adjustment	Adjusted BAU
Simple Town Home	$1,490	$283	$425	$(143)	$1,347
Strata Town Home	$1,500	$294	$455	$(160)	$1,340
4-6 Story Condo	$918	$444	$297	$147	$1,065
7-10 Story Condo	$1,067	$444	$297	$147	$1,214

As demonstrated in the above table, Blatchford customers that pay an annual bill in the amount of the "Adjusted BAU" column will effectively pay the same amount as a BAU equivalent customer for the total utility costs including the maintenance adjustment.

Rate Design and Analysis

This section discusses the rate structure used to determine fixed and variable rates based on the adjusted BAU bill for each customer. Consistent with the methodology used in the 2019 Rate Filing model, GT has used a fixed-variable split across customer classes based on a stated ratio to determine the fixed and variable portion of the District Energy System bill for a customer.

Fixed/Variable Ratios

A fixed/variable ratio rate setting methodology involves fixing total bill amounts to the estimated BAU equivalent bill for each customer, and applying a constant variable/fixed ratio across rate classes to determine the proportional amounts to be billed as part of either fixed or variable rates. This methodology is simple to understand and apply, and allows for an initial assessment of various ratios to determine a fixed and variable breakdown that does not treat any individual customer class unfairly. This methodology was determined to be the most appropriate based on our criteria established in 2019 Rate Filing model. A sensitivity analyses was performed in the 2019 Rate Filing model to determine the fairness of applying these rates for varying customer classes and usages.

Consistent to the methodology used in 2019 Rate Filing model, GT considered the Utility's cost structure in selecting an appropriate fixed/variable ratio. Many cost elements of a utility's revenue requirements can be identified as fixed, variable, or a combination of both. Based on an analysis previously conducted within the COE financial model, it was determined that fixed costs represent approximately 80% of costs, while 20% of the costs are variable[10].

In analysing assumed BAU ratios per the COE Financial Model this ratio ranged from approximately 40/60 variable/fixed for simple town homes, to approximately 60/40 for 4-6 Story Condos, and average approximately 50/50 across all classes (see Appendix 5 for more details). Similar to that in 2019 Rate Filing model, variances in BAU cost structure largely relate to reduced fixed charges for natural gas present in condo units as a result of sharing a single connection amongst multiple units. After considering the above and performing sensitivity analysis,

routine maintenance as compared to a gas hot water tank. For condo buildings, end user maintenance costs are lower largely because mechanical room equipment (referred to as Group 2 assets in the COE Financial Model) are owned and maintained by the Utility, rather than the customers. Thus, from the customer perspective, maintenance costs are lower. (Source: COE Financial Model; Byrnes, Andrew, Pinchin Ltd., August 21, 2018).

[10] While some operating and maintenance costs may be variable in nature, they have been assigned to be fixed costs within COE Financial Model groupings.

it was determined that a 35/65 variable/fixed ratio reasonably mirrored the cost structure to support predictability in revenues, while maintaining fairness to customers in high and low use scenarios.

Rate Conclusions

Using the aforementioned methodology of Rate Design, a variable rate is calculated. This rate is to be utilised for thermal energy usage for all customers, regardless of the customer class. In addition, two separate fixed rates, one for each of town home customers and condo customers are calculated. As discussed in the *Revisions in the 2019 Rate Filing model* subsection, the rates for condos are only notional rates established on the basis of energy usage- gas and electricity- determined for the BAU scenario in the 2019 Rate Filing model. The calculated rates are summarized in the following chart.

2020

Customer Class:	Variable Rate	Fixed Rate
Town Homes	$0.0263/kWh	$1.54/day
Condos	$0.0263/kWh	$1.17/day

Alternatively, the City may escalate 2019 rates based on a constant multiplier of 2.70 per cent (as determined by the Cost of Service approach in COE model) to arrive at the 2020 rates. The calculated rates for 2020 on the basis of a 2.70 per cent increase in the 2019 rates recommended by Grant Thornton are summarized in the following chart.

2020

Customer Class:	Variable Rate	Fixed Rate
Town Homes	$0.0255/kWh	$1.47/day
Condos	$0.0255/kWh	$1.15/day

Rate Analysis

To analyse the appropriateness of the rate setting methodology, comparisons have been made based on different usage intensities within customer groupings, as well as to initial rate analysis contained in the COE Financial Model.

Energy Usage Sensitivity Analysis

Rates calculated in this report are calculated such that the average customer is in a comparative situation to their BAU equivalent. In order to test the reasonability of this rate setting methodology it is prudent to apply these rates to usage by customers with higher and lower annual energy use requirements within each broad rate class. To perform this sensitivity analysis, rates are held constant and calculated customer bills are compared to the BAU in a high use and low use scenario. Specifically, these scenarios include a 25% greater and 25% lower energy requirement adjustment than the average usage estimates as per the 2019 Rate Filing model and the COE Financial Model.

When comparing the calculated bill and the BAU bill for low usage the energy use requirements for an average usage customer are reduced by 25%. To determine commodity requirements (i.e. gas, electricity, thermal), the required energy input to deliver the reduced energy outputs under this scenario is determined. For the high usage and low usage scenarios, the requirement for gas and electricity usage under the BAU, and electricity and thermal usage for Blatchford customers is the same as that utilised in the 2019 Rate Filing Model. Holding end use customer rates constant with the base case, each customer class bill was calculated and compared to the BAU. All variances were within +/- 10%, with the exception of 4-6 Story Condos, which are at 11.8% in 2020 for low use scenario. Given the nature of forecasts and sensitivity analyses, a reasonable +/- range is acceptable as per industry practice. The variance is largely due to differences in fixed and variable rates, as variable components of the calculated

Blatchford Utility bill for this customer class make up a smaller portion of the total, and as such, a lower use customer would be expected to pay more as compared to the BAU. Total bills (including maintenance) for low use customers in 2020 are shown below.

2020 – Low Use

Customer Class:	Calculated Bill	BAU Bill	Variance
Simple Town Home	$1,227.14	$1,198.18	2.4%
Strata Town Home	$1,232.95	$1,188.01	3.8%
4-6 Story Condo	$1034.29	$925.28	11.8%
7-10 Story Condo	$1,137.20	$1,069.72	6.4%

The process for comparing high usage customers was much the same as above, but instead increased energy use requirements by 25%. Total bills (including maintenance) for high use customers in 2020 are shown below.

2020 – High Use

Customer Class:	Calculated Bill	BAU Bill	Variance
Simple Town Home	$1,462.96	$1,496.91	(2.3)%
Strata Town Home	$1,472.64	$1,492.65	(1.3)%
4-6 Story Condo	$1,230.21	$1,203.18	2.2%
7-10 Story Condo	$1,220.38	$1,359.32	(10.2)%

5. Future Considerations

As the Utility matures, additional information and certainty surrounding forecast assumptions will become available. This added ability to project operations will allow the Utility to make new considerations for alternative rate setting methodologies that are more appropriate in a mature and developed Utility. Some considerations that could possibly be made moving forward are:

1) Customer classes
2) Heating and cooling rates
3) Seasonality
4) Alternative rate setting methodology

Customer Classes

The current recommended rate setting methodology contained in this report suggests broad rate classes based on the initial assumptions held through the modelling process. As actual usage metrics become available, the utility should revisit the classification of users. Making a more in depth consideration for usage patterns will allow for more tailored rates which can result in more fair rates across customer classes, and the elimination of any potential cross subsidisation that may be present in the current initial rate design. Further analysis with a Cost of Service Study can reveal whether cross subsidisation amongst customer classes exists.

Heating and Cooling Rates

Given the assumptions noted in the COE Financial Model, there may be different thermal energy and electrical requirements to provide similar level of heating and cooling outputs. As a result, there may be merit to charge different rates for heating and cooling to customers.

Seasonality/Peak Rates

After several years of usage data is available the utility may consider adjusting rates during the year based on seasonality of usage. This would involve raising or lowering rates during parts of the year based on the expected load, to encourage or discourage additional usage. A similar approach can be taken in setting peak rates to apply based on the time of day.

Alternative Rate Setting Methodology

As noted in the 2019 Rate Filing report and this report, there are several other viable options for rate setting methods available to the City in establishing rates. A large drawback of these alternative options, including levelized rate setting, is the lack of available information on Blatchford's performance to allow for accurate projections. As more information becomes available, and the City is able to make more accurate projections rate setting methodologies such as levelized rates, or a hybrid approach (this approach incorporates a variable rate for consumption based on an equivalent BAU published rate e.g. variable rate for electricity or gas, as well as a fixed rate calculated based on the utility's fixed lifecycle costs) may become more viable, and should be considered once again. Additionally, an annual growth rate of 2.7 per cent projected in the COE model may be used as a basis to increase rates annually. Such a levelized approach of determining end use customer rates ensures stable and predictable hike in annual utility expenditure from a consumer's standpoint while ensuring the recovery of revenue requirements over a long term horizon from a Utility's standpoint.

Appendices

Appendix 1 – Model Inputs

A. Energy Use Requirements

a. The MWh energy use requirements per the COE Financial Model over the first four (4) years of utility operations are detailed below. These requirements detail the required energy output in terms of heating, cooling, and domestic hot water for the average customer within each customer class.

Energy Use Requirements in MWh	2020	2021	2022	2023
Fee Simple Town Houses				
a) Space Heating	124	186	294	400
b) Space Cooling	41	61	97	131
c) DHW	88	132	208	282
sub-total	253	379	599	813
Strata Town Houses				
a) Space Heating	128	192	304	412
b) Space Cooling	42	63	100	135
c) DHW	91	136	215	291
sub-total	261	391	618	839
4-6 Story Condo Units				
a) Space Heating	466	697	1,101	1,495
b) Space Cooling	325	486	768	1,043
c) DHW	363	543	858	1,165
sub-total	1,153	1,726	2,728	3,703
7-10 Story Mixed Use Units				
a) Space Heating	90	135	213	289
b) Space Cooling	92	138	218	296
c) DHW	67	100	158	214
sub-total	249	373	589	800
NAIT Educational space				
a) Space Heating	-	-	-	-
b) Space Cooling	-	-	-	-
c) DHW	-	-	-	-
sub-total	-	-	-	-
NAIT Residential Units				
a) Space Heating	-	-	-	-
b) Space Cooling	-	-	-	-
c) DHW	-	-	-	-
sub-total	-	-	-	-
Office Space				
a) Space Heating	-	-	-	-
b) Space Cooling	-	-	-	-
c) DHW	-	-	-	-
sub-total	-	-	-	-
All				
a) Space Heating	808	1,210	1,912	2,596
b) Space Cooling	500	749	1,183	1,606
c) DHW	608	910	1,438	1,953
sub-total	1,917	2,869	4,534	6,155

B. BAU Commodity Requirements

Under the BAU gas and electricity are used in order to deliver the Energy Use Requirements above. Per the COE Financial Model, the values below outline the MWh requirements under the BAU in order to meet output requirements under each customer class. In determining these commodity requirements factors such as efficiency, and energy use intensity (based on building codes) are considered.

	2020	2021	2022	2023
Commodity Requirements in MWh - BAU				
Fee Simple Town Houses				
a) Space Heating				
Gas	885	1,787	1,787	1,787
Electricity	-	-	-	-
b) Space Cooling - Electricity	21	42	42	42
c) DHW - Gas	293	592	592	592
sub-total	1,199	2,421	2,421	2,421
Strata Town Houses				
a) Space Heating				
Gas	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling - Electricity	-	-	-	-
c) DHW - Gas	-	-	-	-
sub-total	-	-	-	-
4-6 Story Condo Units				
a) Space Heating				
Gas	-	3,750	8,363	12,780
Electricity	-	663	1,480	2,261
b) Space Cooling - Electricity	-	288	642	981
c) DHW - Gas	-	1,310	2,921	4,464
sub-total	-	6,010	13,405	20,485
7-10 Story Mixed Use Units				
a) Space Heating				
Gas	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling - Electricity	-	-	-	-
c) DHW - Gas	-	-	-	-
sub-total	-	-	-	-
NAIT Educational space				
a) Space Heating				
Gas	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling - Electricity	-	-	-	-
c) DHW - Gas	-	-	-	-
sub-total	-	-	-	-
NAIT Residential Units				
a) Space Heating				
Gas	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling - Electricity	-	-	-	-
c) DHW - Gas	-	-	-	-
sub-total	-	-	-	-
Office Space				
a) Space Heating				
Gas	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling - Electricity	-	-	-	-
c) DHW - Gas	-	-	-	-
sub-total	-	-	-	-
All				
a) Space Heating				
Gas	885	5,537	10,150	14,567
Electricity	-	663	1,480	2,261
b) Space Cooling - Electricity	21	329	683	1,022
c) DHW - Gas	293	1,902	3,513	5,056
sub-total	1,199	8,432	15,826	22,907

Source: *Grant Thornton's Analysis, COE District Energy Rate Model*

C. DESS Commodity Requirements

a. Under the DESS thermal power and electricity are used in order to deliver the Energy Use Requirements above. Per the COE Financial Model, the values below outline the MWh requirements under the DESS in order to meet output requirements under each customer class. In determining these commodity requirements factors such as efficiency, and energy use intensity (based on building codes) are considered.

b. Under the DESS Commodity Requirement is the ratio between Build out projections in 2018 and projections in 2019. These ratios are used to maintain the relationship between number of units for each customer class and the Commodity requirements for them as per the COE Model.

Commodity Requirements in MWh - DESS	2020	2021	2022	2023
Fee Simple Town Houses				
a) Space Heating				
Thermal	167	338	338	338
Electricity	56	113	113	113
b) Space Cooling				
Thermal	86	173	173	173
Electricity	12	25	25	25
c) DHW				
Thermal	105	212	212	212
Electricity	53	106	106	106
sub-total	479	967	967	967
Strata Town Houses				
a) Space Heating				
Thermal	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling				
Thermal	-	-	-	-
Electricity	-	-	-	-
c) DHW				
Thermal	-	-	-	-
Electricity	-	-	-	-
sub-total	-	-	-	-
4-6 Story Condo Units				
a) Space Heating				
Thermal	-	782	1,743	2,664
Electricity	-	297	663	1,014
b) Space Cooling				
Thermal	-	851	1,898	2,900
Electricity	-	150	334	510
c) DHW				
Thermal	-	541	1,207	1,845
Electricity	-	271	604	922
sub-total	-	2,891	6,449	9,855
7-10 Story Mixed Use Units				
a) Space Heating				
Thermal	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling				
Thermal	-	-	-	-
Electricity	-	-	-	-
c) DHW				
Thermal	-	-	-	-
Electricity	-	-	-	-
sub-total	-	-	-	-

	2020	2021	2022	2023
Commodity Requirements in MWh - DESS				
NAIT Educational space				
a) Space Heating				
Thermal	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling				
Thermal	-	-	-	-
Electricity	-	-	-	-
c) DHW				
Thermal	-	-	-	-
Electricity	-	-	-	-
sub-total	-	-	-	-
NAIT Residential Units				
a) Space Heating				
Thermal	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling				
Thermal	-	-	-	-
Electricity	-	-	-	-
c) DHW				
Thermal	-	-	-	-
Electricity	-	-	-	-
sub-total	-	-	-	-
Office Space				
a) Space Heating				
Thermal	-	-	-	-
Electricity	-	-	-	-
b) Space Cooling				
Thermal	-	-	-	-
Electricity	-	-	-	-
c) DHW				
Thermal	-	-	-	-
Electricity	-	-	-	-
sub-total	-	-	-	-
All				
a) Space Heating				
Thermal	167	1,119	2,081	3,002
Electricity	56	410	776	1,127
b) Space Cooling				
Thermal	86	1,024	2,071	3,073
Electricity	12	175	359	536
c) DHW				
Thermal	105	753	1,419	2,057
Electricity	53	377	710	1,028
sub-total	479	3,859	7,416	10,822

	2020	2021	2022	2023
Commodity requirement ratio (for use in 2019)				
total FSTH	0.56	0.41	0.65	0.89
total 4-6 Story condo units	-	0.67	0.47	0.42

D. BAU Rates

a. The carbon tax rate assumption is based on the proposed federally mandated carbon tax rate policy that would come into effect from January 1 2020, assuming that the federal government remains unchanged. The rate would be $30/tonne in 2020 which would increase to $40/tonne in 2021 and reach its cap at $50/tonne from 2022 onwards.

b. For detailed information on variable electricity rate growth, refer to the Electricity Rate Growth section which follows.

c. For detailed information on variable gas rate growth, refer to the Gas Rate Growth section which follows.

d. For detailed information on initial year variable and fixed electricity rates, and fixed electricity rate growth refer to the Electricity Rate Inputs section which follows. For 2020 and later years, variable and fixed electricity rates are increased at the respective growth rates noted in the table below.

e. For detailed information on initial year variable and fixed gas rates, and fixed gas rate growth refer to the Gas Rate Inputs section which follows. For 2019 and later years, variable and fixed gas rates are increased at the respective growth rates noted in the table below.

f. 4-6 Condo Fixed Inclusion and 5-7 Condo Fixed Inclusion values are adjustments made to fixed gas rates to account for a reduction in the number of gas connections present in these condo buildings. As per 2019 Rate Filing model and COE Financial Model, 4-6 story condos are expected to have one connection for every 60 units, while 5-7 story condos are expected to have 5 connections for every 85 units. These ratios are multiplied by fixed gas rates to determine an effective fixed charge to be applied to customers in these classes respectively.

	2019	2020	2021	2022	2023
BAU Rates					
Growth:					
Variable Electricity Rate Growth	3.3%	3.3%	3.3%	3.3%	3.3%
Fixed Electricity Rate Growth	2.9%	2.9%	2.9%	2.9%	2.9%
Variable Gas Rate Growth	5.9%	5.9%	5.9%	5.9%	5.9%
Fixed Gas Rate Growth	2.2%	2.2%	2.2%	2.2%	2.2%
Rates:					
Variable Electricity Rate ($/kWh)	0.12	0.129	0.13	0.14	0.14
Fixed Electricity Rate ($/day)	0.83	0.85	0.88	0.90	0.93
Variable Gas Rate ($/kWh)	0.02	0.0191	0.0202	0.0214	0.0227
Variable Gas Rate ($/kWh) - Large Use	0.01	0.012	0.013	0.014	0.014
Fixed Gas Rate ($/day)	1.56	1.59	1.63	1.66	1.70
Fixed Gas Rate ($/day) - Large Use	8.00	8.18	8.36	8.54	8.73
4-6 Condo Fixed Inclusion	0.017	0.017	0.017	0.017	0.017
7-10 Condo Fixed Inclusion	0.058	0.058	0.058	0.058	0.058
Carbon tax ($/tonne)	30.00	30.00	40.00	50.00	50.00

E. Key Drivers of Changes in BAU Rates from 2019 Rate Filing model

The introduction of Rider S in gas rates was seen as a major contributor in the increase in base rates between 2018 and 2019. Additionally, the increase in cost of energy, rider fees and increase in annual growth forecast have been the major drivers of increase in BAU rates between 2018 and 2019. The individual drivers for increase in rates are:

Baseline energy rates	2019 Rate Filing model	2020 Rate Filing model	Per cent increase	Drivers
Variable Electricity Rate ($/kWh)	0.1160	0.1290	**11.28%**	1.Increase in annual growth rate from 1.4% to 3.3% 2. Increase in base rate from 0.1144/kWh to 0.1250 kWh in 2019
Fixed Electricity Rate ($/day)	0.8228	0.8547	**3.88%**	1. Increase in rider fees
Variable Gas Rate ($/kWh) (Low Use)	0.0173	0.0191	**10.53%**	1. Increase in annual growth rate from 5.6% to 5.9% 2.Increase in base rate from $0.0164/kWh to $0.0180/kWh in 2019 3. Introduction of Rider 'S'
Variable Gas Rate ($/kWh) (High Use)	0.0113	0.0122	**8.35%**	1. Increase in annual growth rate from 5.6% to 5.9% 2. Increase in base rate from $0.0107/kWh to $0.0115/kWh in 2019 3. Introduction of Rider 'S'
Fixed Gas Rate ($/day) (Low Use)	1.4725	1.5913	**8.07%**	1. Increase in base rate from $1.4366/day to $1.5573 2. Introduction of Rider 'S'
Fixed Gas Rate ($/day) (High Use)	7.8363	8.1788	**4.37%**	1. Increase in base rate from $7.6451/day to $8.0040/day in 2019 2.Introduction of Rider 'S'

F. Electricity Rate Growth

a. Similar to the approach used in the 2019 Rate Filing model, the EDC Associates Ltd. (EDC) Pool Price Forecast[11] (below) was used to estimate the electricity rate growth. The forecasted value was used to determine an average annual rate in order to capture to growth in the cost of electricity from 2018 to 2032. As compared to the 2018 electricity rate growth forecast of 1.4%, a growth rate of approximately 3.3% is implicit in the increase from $58.76/MWh in 2019 to $89.11/MWh in 2033. This 3.3% growth rate has been applied to current variable electricity rates to estimate future rates. Annual growth rates as per EDC's pool price forecasts were also considered. Because these ranged significantly with positive and negative changes (i.e. 2018 to 2019 increased by 17.1%, followed by a -8.1% from 2019 to 2020), a longer term horizon was selected as a growth rate proxy in order to reduce significant annual BAU bill changes, as annual growth rates in a short term horizon ranged significantly with positive and negative growth rates (e.g. 2019 to 2020 decreased by 1.6% followed by a 3.8% increase between 2020 and 2021).

b. Fixed growth rates are consistent with the COE Financial Model, which calculates the average historical fixed electricity growth rate from 2013 to 2017. Fixed rates in the COE Financial Model are calculated using a similar methodology as described in the Electricity Rate Inputs section detailed below. The average growth rate over the period noted is 2.9%, which is applied to the initial rates to forecast future rates to be used in rate setting.

Annual AB Pool Price Forecast - Energy only ($/MWh)	
	2019 Q3 Report
	Energy Only Market (+ TIER)
	Table 57
2018	
2019	$58.76
2020	$57.80
2021	$58.02
2022	$60.67
2023	$62.43
2024	$67.18
2025	$69.45
2026	$72.22
2027	$76.88
2028	$80.99
2029	$82.39
2030	$83.61
2031	$85.80
2032	$87.39
2033	$89.11

[11] Provided by City of Edmonton on August 23, 2019.

G. Gas Rate Growth

a. Like for estimating the electricity rate growth, the EDC Pool Price Forecast[12] (below) was used to estimate the gas rate growth. The forecasted value was used to determine an average annual rate in order to capture to growth in the cost of gas from 2019 to 2033. In the case below, a growth rate of approximately 5.9% is implicit in the increase from $1.6/MWh in 2019 to $3.27/MWh in 2033. This 5.9% growth rate has been applied to current variable gas rates to estimate future rates. Annual growth rates as per EDC's annual natural gas forecasts were also considered. Because these ranged significantly (e.g. between 2019 and 2020, growth would be negative at 2.6%, followed by a 3.2% increase between 2020 and 2021, and a 13% increase between 2020 and 2022), a longer term horizon was selected as a growth rate proxy in order to reduce significant annual BAU bill changes.

b. Growth rates for the fixed portion of the gas rate has been calculated consistent with the COE Financial Model approach, which assumes that the rates will grow at the average growth rate for the past 5 years. The fixed rate has grown from $1.28 in 2012 to $1.44 in 2018 for an average growth rate of 2.2%, which has been maintained in our calculation of initial year rates.

Annual AECO-C Natural Gas Price Forecast ($.GJ)	
	2019 Q3 Report (Table 37)
2018	
2019	1.6
2020	1.53
2021	2.02
2022	2.26
2023	2.58
2024	2.7
2025	2.79
2026	2.85
2027	2.91
2028	2.97
2029	3.02
2030	3.08
2031	3.15
2032	3.21
2033	3.27

The following table summarises the projected annual growth rates (%) of the several baseline energy rates ($) in the 2019 model vis-à-vis the 2019 Rate Filing model.

Baseline energy rates	2019 Rate Filing model	2020 Rate Filing model
Variable Electricity Rate Growth	**1.4%**	**3.3%**
Fixed Electricity Rate Growth	**2.9%**	**2.9%**
Variable Gas Rate Growth	**5.6%**	**5.9%**
Fixed Gas Rate Growth	**2.5%**	**2.2%**

[12] Provided by City of Edmonton on August 23, 2019.

H. Electricity Rate Inputs

a. Initial year energy rates are estimated based on current regulatory rates posted by Epcor, as well as Rate Regulated Option (RRO) rates available to customers in Edmonton per Direct Energy. Current energy related monthly charges, distribution access fees, system access charge, and other fees and riders are taken from Epcor published schedules on https://www.epcor.com/products-services/power/rates-tariffs-fees/Pages/power-tariffs-terms-and-conditions-edmonton.aspx as of July 2019. Energy related energy charges are based on the RRO contract offered by Direct Energy in Edmonton as of July 2019, refer to https://www.directenergy.ca/alberta/electricity-plans for additional details.

b. To determine a fixed electricity rate, the monthly energy related charges of $5.36 per month are converted to a daily value of $0.18 per day, and added to the daily distribution access fee of $0.65, to give a total daily fixed charge of $0.83.

c. To determine a variable charge per kWh, all charges which vary with energy usage (see Energy Charges (Cents/kWh) column in chart below) are added to give a total initial variable electricity charge of $0.125/kWh.

d. The table below provides the fixed and variable charges according to the Direct Energy 5 year RRO offer as of July 2019, as well as an illustrative bill make up for a customer using 7200 kWh annually.

Annual Electricity Bill for an Average Edmonton Residential Customer - calculation based on July 2019 energy prices for Regulated Rate Option

Annual Consumption Assumed 7200 kWh

	Rates			Charges					
	Daily Charges ($/Day)	Monthly Charges ($/Month	Energy Charges (Cents/kWh)	Daily Based	Monthly Base ($)	Energy Based ($)	Total ($)	Fixed Charges per day	In $/kWh
Energy Related		5.3600	6.8000	0.00	64.32	489.60	553.92	0.18	0.0680
Distribution Access	0.6521		0.9510	238.02	0.00	68.47	306.49	0.65	0.0095
System Access			3.1320	0.00	0.00	225.50	225.50	-	0.0313
Balancing Pool Rider			0.3000	0.00	0.00	21.60	21.60	-	0.0030
Local Access Fee			0.8100	0.00	0.00	58.32	58.32	-	0.0081
SAS True up Rider - J			-0.0100	0.00	0.00	-0.72	-0.72	-	- 0.0001
Rider K			0.5130	0.00	0.00	36.94	36.94	-	0.0051
Total				**238.02**	**64.32**	**899.71**	**1,202.05**	0.83	0.125

I. Gas Rate Inputs

a. Initial year gas rates are based on regulatory rates per Atco Gas, and Direct Energy Regulatory Services. Rates have been taken for low use and high use customers in order to separate usage patterns that are expected for town homes (low usage) as compared to condos (high usage). To determine the updated cost of gas of $0.0061/kWh, the average rate charged for direct energy costs for 2019 year to date to August 1, 2019 was calculated. The figure was then divided by 277.78 in order to convert the output from $/GJ to $/kWh.

b. Fixed admin fees are taken from Direct Energy Regulatory Services (https://www.directenergyregulatedservices.com/natural-gas) as of August 2019, which has separate rates posted for each of general use and large use customers.

c. Delivery Variables + Riders and Delivery Fixed + Riders are sourced from Atco Gas who posts these rates, which are categorized as fixed and variable rates. Variable rates are converted to kWh for use in the model using a conversion factor of 277.78. These delivery fees are grossed up from the regulatory posted rates by 32.9% to account for the Edmonton franchise fee. This gross up value is consistent with the factor used in the COE financial model.

d. In addition to regulatory rates, a certainty premium of $0.0036/kWh has been added to variable rates, consistent with treatment in the COE Financial Model. Given the above discussed values, the total variable gas rate (cost of gas plus delivery variables, plus certainty premium) is $0.0180/kWh for low use customers, and $0.0115/kWh for high use customers. Fixed charges (admin fee plus delivery fixed) are $1.5573/day for low use customers, and $7.6451/day for high use customers.

e. Growth rates for fixed gas has been calculated consistent with the COE Financial Model approach, which assumes that the rates will grow at the average growth rate for the past 5 years. As seen in the table below, the fixed rate has grown from $1.28 in 2012 to $1.44 in 2018 for an average growth rate of 2.2%, which has been maintained in our calculation of initial year rates.

Low Use			**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**6.5 Yr Average Value 2011-2017 (admin fee current)**	**Updated 07/31/19 (per GT)**	**Variance**
Energy Charges - Direct Energy								EPCOR 2yr fixed plan at $3.69, 5 yr at $4.59					
- Cost of Gas	$/GJ		$ 3.62	$ 2.41	$ 3.07	$ 4.52	$ 2.73	$ 2.09	$ 2.22		$ 2.95	0.0061	42.29%
		annual change	n/a	-34%	28%	47%	-40%	-23%	6%				
- Admin Fee	$/day		$ 0.223	$ 0.223	$ 0.223	$ 0.223	$ 0.223	$ 0.249	$ 0.249	$ 0.249	$ 0.249	0.2720	-9.24%
		annual change	n/a	0%	0%	0%	0%						
Distributor Charges - Atco North													
- Delivery Variable + Riders	$/GJ*		$ 1.67	$ 1.73	$ 1.97	$ 1.98	$ 2.05	$ 2.39	$ 2.61		$ 2.06	0.0083	-12.26%
		annual change	n/a	4%	14%	1%	3%	17%	9%				
- Delivery Fixed + Riders	$/day*		$ 1.122	$ 1.053	$ 1.174	$ 1.163	$ 1.255	$ 1.289	$ 1.293	$ 1.188	$ 1.193	1.2853	0.60%
		annual change	n/a	-6%	12%	-1%	8%	3%	0%				
Certainty Premium (Per model)												0.0036	
Total													
- Variable	$/GJ		$ 5.28	$ 4.13	$ 5.04	$ 6.51	$ 4.78	$ 4.48	$ 4.83		$ 5.01	0.0180	16.57%
		annual change	n/a	-22%	22%	29%	-27%	-6%	8%				
- Fixed	$/day		$ 1.34	$ 1.28	$ 1.40	$ 1.39	$ 1.48	$ 1.54	$ 1.54	$ 1.44	$ 1.44	1.5573	-0.99%
		annual change	n/a	-5%	10%	-1%	7%	4%	0%		2.2%		

High Use			2011	2012	2013	2014	2015	2016	2017	6.5 Yr Average Value 2011-2017 (admin fee current)	5 Yr Average Value 2011-2015		Used in Model	Updated 08/18 (per GT)	Variance
Energy Charges - Direct Energy															
- Cost of Gas	$/GJ		$ 3.62	$ 2.41	$ 3.07	$ 4.52	$ 2.73	$ 2.09	$ 2.22	$ 2.95	$ 3.28	-10%	0.0106	0.0055	48.66%
		annual change	n/a	-34%	28%	47%	-40%	-23%	6%						
- Admin Fee	$/day		$ 0.223	$ 0.223	$ 0.223	$ 0.223	$ 0.223	$ 0.249	$ 0.249	$ 0.249	$ 0.223	12%	0.2490	0.6820	-173.90%
		annual change	n/a	0%	0%	0%	0%	12%	0%						
Distributor Charges - Atco North															
- Delivery Variable + Riders	$/GJ*		$ 0.43	$ 0.45	$ 0.49	$ 0.52	$ 0.49	$ 0.53	$ 0.64	$ 0.51	$ 0.48	6%	0.0018	0.0016	11.61%
		annual change	n/a	4%	9%	8%	-6%	8%	21%						
- Delivery Fixed + Riders	$/day*		$ 6.328	$ 5.940	$ 6.827	$ 6.911	$ 7.336	$ 7.535	$ 7.575	$ 6.92	$ 6.67	4%	7.5753	6.9631	8.08%
		annual change	n/a	-6%	15%	1%	6%	3%	1%						
Certainty Premium (Per model)													0.0036	0.0036	
Total															
- Variable	$/GJ		$ 4.05	$ 2.85	$ 3.56	$ 5.05	$ 3.22	$ 2.62	$ 2.86	$ 3.46	$ 3.76	-8%	0.0160	0.0107	33.53%
		annual change	n/a	-30%	25%	42%	-36%	-19%	9%						
- Fixed	$/day		$ 6.55	$ 6.16	$ 7.05	$ 7.13	$ 7.56	$ 7.78	$ 7.82	$ 7.17	$ 6.89	4%	7.8243	7.6451	2.29%
		annual change	n/a	-6%	14%	1%	6%	3%	1%	3.3%					

J. End User Maintenance Costs

a. End user maintenance costs are taken directly from the COE Financial Model, which shows the average maintenance costs expected to be paid by customers of each class under each of the BAU and DESS scenarios. These maintenance costs were developed based on analysis performed by engineers for use in the COE Financial Model.

	2018	2019	2020	2021	2022	2023
End User Maintenance Costs (Per Model)						
BAU						
Fee Simple Town Houses	-	184	125	121	144	147
Strata Town Houses	-	192	131	126	150	153
4-6 Story Condo Units	-	289	197	190	226	230
7-10 Story Mixed Use Units	-	289	197	190	226	230
NAIT Educational space	-	-	-	-	-	-
NAIT Residential Units	-	-	-	-	-	-
Office Space	-	-	-	-	-	23,016
All	-	954	650	628	746	23,775
DESS						
Fee Simple Town Houses	-	287	196	189	225	229
Strata Town Houses	-	307	209	202	240	244
4-6 Story Condo Units	-	201	137	132	157	160
7-10 Story Mixed Use Units	-	201	137	132	157	160
NAIT Educational space	-	-	-	-	-	-
NAIT Residential Units	-	-	-	-	-	-
Office Space	-	-	-	-	-	16,324
All	-	996	679	656	779	17,116

K. Build-Out

a. The revised estimated build-out for each customer class in 2019 was shared by the City of Edmonton in July, 2019

	2020	2021	2022	2023
Build-out				
total FSTH	53	107	107	107
total Strata T/Hs	-	-	-	-
total 4-6 Story condo buildings	3	4	7	9
total 4-6 Story condo units	-	382	852	1,302
total 7-10 Story MU buildings	-	-	-	-
total 7-10 Story MU units	-	-	-	-
total NAIT Educational buildings	-	-	-	-
total NAIT Residential buildings	-	-	-	-
total NAIT Residential units	-	-	-	-
total office buildings	-	-	-	-
Total Customers	53	489	959	1,409

Appendix 2 – BAU Bill Components

The values presented in the table below represent the fixed and variable components of a BAU Bill as structured per the COE Financial Model.

	Variable Electricity	Variable Gas	Carbon Tax	Total Variable	Fixed Gas	Fixed Electricity	Total Fixed
BAU							
Simple TH	3.3%	28.5%	10.3%	**42.1%**	37.6%	20.3%	**57.9%**
Strata TH	3.4%	28.1%	8.6%	**40.0%**	39.1%	20.9%	**60.0%**
4-6 Condo	34.1%	17.6%	10.0%	**61.7%**	5.2%	33.0%	**38.3%**
7-10 Condo	31.6%	15.3%	7.3%	**54.2%**	16.5%	29.3%	**45.8%**

CITYPOLICY

POLICY NUMBER:
C597

REFERENCE:

ADOPTED BY:
City Council

SUPERSEDES:
New

PREPARED BY: Integrated Infrastructure Services **DATE:** March 22, 2018

TITLE: **BLATCHFORD DISTRICT ENERGY UTILITY FISCAL POLICY**

Policy Statements:

1. The Utility is to be operated in a manner that balances the best possible service at the lowest cost (public utility) while employing private sector approaches to rate setting.
2. Similar to private utilities, the Utility will account for the cost of service under a full cost accounting approach. All customer charges will be based upon cost of service with the end user (customer) paying at most a comparable fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs.
3. Through a phased approach, the Utility will generate positive net income, cash flow and a rate of return sufficient to cover current year expenses, working capital requirements, and to facilitate the funding for capital infrastructure and rehabilitation and replacement of its capital assets.
4. The Utility is to contribute towards achieving the City's Energy Transition Strategy.

The purpose of this policy is to:

1. Ensure that the Blatchford District Energy Utility is operated in a manner that reflects City Council's overall vision and philosophical objectives for the Utility.
2. Ensure that there is a consistent approach year over year for the financial planning, budgeting, and rate setting for the City managed Utility.
3. Ensure that the Utility is financially sustainable over the long term.

1. DEFINITIONS

1.1 **Cash Flow** - the ability of the Utility to meets it financial obligations as payments are due.

1.2 **Capital Assets** - assets of the Utility meeting the requirements defined under Public Sector Accounting Standard PS3150.

1.3 **Capital Investment Outlook** - a 10-year forecast of capital required to ensure that appropriate infrastructure are in place to meet service needs, including the replacement of Contributed Assets.

1.4 **Capital Plan** - a 4-year plan for funding capital infrastructure approved by City Council.

1.5 **Contributed Assets** - capital assets of the Utility for which funding was provided from non-rate sources. Examples may include infrastructure constructed by the Blatchford Development, partnership funding, grants, etc.

1.6 **Debt to Net Assets Ratio** - is a measure of the extent to which the net book value of non-contributed assets is being financed by debt.

1.7 **Financial Indicators** - a set of financial measures that provide signals on the financial health of the Utility.

1.8 **Financial Sustainability** - financial sustainability is achieved when all targets set for the Financial Indicators (as recommended by the Utility Committee and approved by City Council) are attained.

1.9 **Full Cost Accounting** - shall include cost allocation from services provided by City Administration and may include administration costs, and other shared services such as Communication, Human Resources, Information Technology, Law, Corporate Procurement and Supply Services, Financial Services, Fleet and Facility Maintenance, and general corporate overhead.

1.10 **Investment in Utility Financed Assets** - Net Book Value of Utility Financed Assets minus associated outstanding debt used to pay for the assets.

1.11 **Net Book Value** - acquisition costs of original costs of capital assets minus their accumulated depreciation

1.12 **Pay As You Go** - the amount of cash required to implement the Capital Plan; annual amount to be funded from operating revenues.

1.13 **Rate Revenue** - revenue generated through monthly customer rates.

1.14 **Regulated Activities** - are activities that are core to the services provided by the Utility. Examples include, the provision of energy for heating and cooling and domestic hot water.

1.15 **Utility** - refers to the Blatchford District Energy Utility, a self-funded operation that provides energy services for heating, cooling and domestic hot water to customers on a fee for service basis at rates regulated by City Council.

1.16 **Utility Financed Assets** - assets of the Utility for which funding has been provided from rates either through debt or Pay As You Go funding.

Following are financial indicators and additional general policy statements to guide the financial management of the utility.

2. FINANCIAL INDICATORS

Financial indicators are measures that provide financial information about the sustainability of the Utility. Taken collectively, these indicators allow for periodic assessment on whether the Utility is moving towards or away from financial sustainability.

2.1 Rate Sufficient to Meet Expenditures and Cash Flow (Positive Net Income and Positive Cash Position)

A. The Utility will generate positive net income, cash flow and a rate of return sufficient to cover current year expenses, working capital requirements, and to facilitate the funding for capital infrastructure and rehabilitation and replacement of its capital assets.

B. The management of the Utility's cash position is the responsibility of Administration, taking into consideration current borrowing rates and current and future cash requirements.

C. Where the Utility's cash position is insufficient to meet cash flow requirements, the Utility will borrow from the City of Edmonton on a short term basis, with the interest being paid by the Utility at an interest rate that compensates the City of Edmonton reflecting the Fund Balance where the cash was drawn.

Indicator Targets:

I. Positive Net Income
II. The target combined Cash Position of the Utility is the Pay As You Go funding required as identified in the Capital Plan.
III. Stable consistent rate increases.

2.2 Debt Financing of Capital

A. The Utility will not utilize Debt to finance current operating expenditures.
B. Debt will be considered for Capital Expenditures for:
   a. projects with long-term benefits;
   b. major rehabilitation or upgrade of existing assets; and
   c. emerging requirements to support corporate priorities and strategic plans.

C. The Utility will follow the City of Edmonton's process for debt issuance, including the term of the debt and will be consolidated with City debt in determining the City's position relative to the legislated debt limits.

Indicator Target:

The Debt to Net Assets Ratio is a measure of the extent that capital investment is financed through debt, presented on a combined basis and calculated as follows:

Total Long Term Debt

divided by

Net book value of Non-Contributed Assets

= Debt to Net Assets Ratio

The target for the Debt to Net Assets Ratio may vary between 50% and 70%, taking into consideration borrowing rates. Incremental targets, by year, are as follows:

2030 - 98%; 2040 - 85%; 2050 - 70%; 2060 - 60%

3.0 Financial Planning

Budget and financial planning follow the general principles of budget, long range planning, and management of capital assets as established by the City of Edmonton and in accordance with Public Sector Accounting Standards defined by the Public Sector Accounting Board.

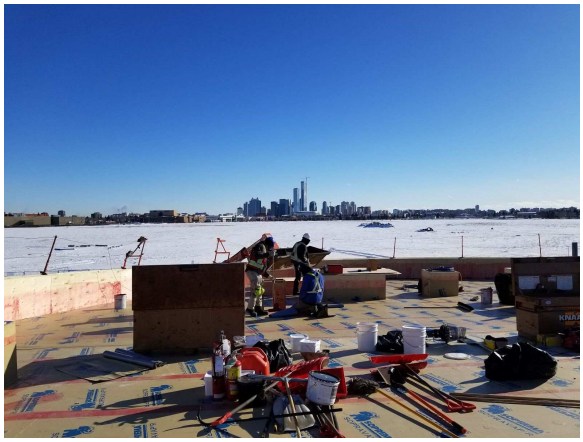
The Utility will prepare a 4-year Business Plan, to be presented annually to the Utility Committee, prior to the preparation of the multi-year operating and capital budgets or supplemental budget adjustments.

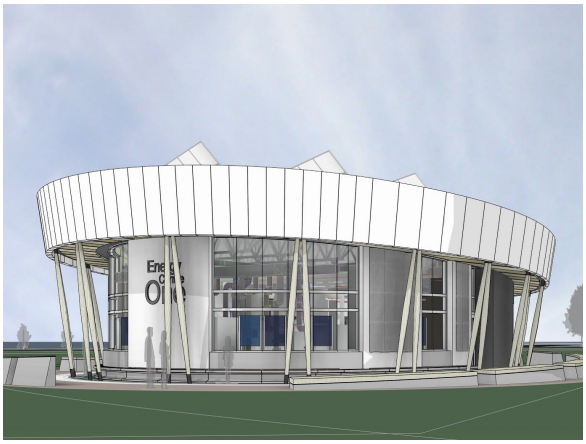
The Utility Committee shall recommend annually to City Council the customer rates for the upcoming year, based on review of an annual rate filing prepared by the Utility subsequent to the preparation and presentation of the 4-year Business Plan.

BLATCHFORD RENEWABLE ENERGY UTILITY

2020 - 2023

Business Plan





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Key Utility Development Updates

Since the presentation of the first Blatchford Renewable Energy Utility Business Plan in June 2018, a number of activities have occurred to further the development of the utility. A summary of these key activities can be found below. Additional details on these activities is provided in this updated business plan.

- In December 2018, Bylaw 17943 for the new Blatchford Renewable Energy Utility was approved by City Council. The Bylaw establishes the utility around the District Energy Sharing System. The Bylaw also establishes the initial utility rates and fees for 2019. In order to set the rates, a rate setting study was conducted following the principles of the utility's fiscal policy C597.
- In December 2018, the first four year operating budget for the Blatchford Renewable Energy Utility was approved by Council. This budget puts in place the funding for further development of the utility as well as providing expected operating and maintenance costs.
- Also in December 2018, the four year capital budget was presented during budget deliberation. Council asked Administration to provide an update on the strategy, including an analysis of the range of financial options, to fund the nonrefundable cash infusion needed for the Blatchford Renewable Energy Utility. This report was provided to Utility Committee on March 22, 2019.
- In February 2019, NAIT and the City of Edmonton, alongside the Province of Alberta, announced NAIT's expansion into Blatchford. With this land sale, NAIT has acquired 32.79 acres in the community with the potential to add another eight acres in the future. NAIT's expansion will significantly impact the timeline and growth of the Blatchford Renewable Energy Utility.
- In June 2019, a capital budget ask to provide funding for the planning and design of the next stage of the development of the utility was presented to Council as part of the 2019 spring supplemental capital budget adjustment.
- Construction on the first geoexchange field was completed and construction of Energy Centre #1 for the District Energy Sharing System is progressing on time and budget. The project nears completion in the third quarter of 2019 and initial commissioning activities have started.
- The utility is preparing for the start of operations later in 2019, when the first customers are expected to connect to the District Energy Sharing System. This preparation includes the operation, maintenance and engineering support, proper financial, regulatory and legal setup, the further development of marketing and communication support functions, and the establishment of billing and customer services.
- With the first Blatchford builder announcement in March 2019, the utility continues to work with the homebuilders to establish the connection requirements to the District Energy Sharing System as part of their design and construction activities.

Blatchford Renewable Energy Utility

BLATCHFORD

After operating as an airport for decades, City Council voted to implement a phased closure of the City Centre Airport in 2009, with the airport officially closing in 2013. A business case for the Blatchford community was approved by City Council in 2014 with the construction of the first phase commencing later that year. Construction activities to prepare the site for the first builders continued on site over the next few years, including the installation of the storm, sanitary, water services and distribution piping for the District Energy Sharing System. In 2018, construction of the first geoexchange field and Energy Centre #1 began, with the system expected to be commissioned during the third quarter of 2019. The recently announced first builders in the community are planning to start construction in 2019, with the first homes expected to connect to the District Energy Sharing system during the fourth quarter of this year.

The Blatchford development's vision is to be one of the world's largest sustainable communities and home to 30,000 residents; all living sustainably on 536 acres of land, minutes away from downtown, existing infrastructure, schools, retail and services. Blatchford will be comprised of two primarily residential spaces on the east and west side of the site, along with a town centre, a large central park with plenty of green space throughout the community, as well as a civic plaza that will function as a large gathering space for the community.

VISION

Blatchford will be home to up to 30,000 Edmontonians living, working and learning in a sustainable community that uses 100% renewable energy, is carbon neutral, significantly reduces its ecological footprint, and empowers residents to pursue a range of sustainable lifestyle choices.

BLATCHFORD ENERGY STRATEGY

The Blatchford Energy Strategy is the product of a multi-year assessment and design process. The strategy is based on three key components: Energy Conservation, Energy Efficiency, and Renewable Energy generation.

Energy Conservation

Blatchford's energy conservation strategy will reduce the overall community energy demand by requiring the construction of high performance buildings. In addition to minimizing the demand for energy at the outset of development, the size of the renewable energy infrastructure and the investment required will be reduced.

Energy Efficiency

The second component of the Blatchford energy plan is a high-efficiency energy delivery system. This ambient (low) temperature District Energy Sharing System, will provide heating, cooling and domestic hot water for the Blatchford development. The District Energy Sharing System allows for energy

sharing between buildings, development phases and building types. In a neighbourhood the size of Blatchford with a large diversity of building types and densities, the sharing of energy can reduce overall energy consumption by 10 to 20 percent.

Renewable Energy

The third component of the Blatchford district energy strategy includes incorporating renewable energy as the primary source of thermal energy. This approach uses two different energy sources; geo-exchange and sewer heat exchange, to meet the thermal energy demands of the site, both now and at full build-out. In future, the electricity used for heating, cooling and domestic hot water production is planned to be offset with the addition of renewable electricity generation. As an example, energy could be provided through solar photovoltaic technology.

BLATCHFORD RENEWABLE ENERGY UTILITY

To help achieve the City's long term goal of 100% renewable energy and carbon neutrality for Blatchford, a new public, city owned utility has been established. The Blatchford Renewable Energy Utility will own and operate the District Energy Sharing System including certain mechanical equipment within the customer buildings. All buildings in Blatchford, with the exception of net-zero carbon buildings, must be connected to the District Energy Sharing Systems for all heating, cooling and domestic hot water services.

The first stage of the utility development of the District Energy Sharing System consists of: a ground heat exchanger borefield located under the future stormwater pond; Energy Centre # 1 located on the future Blatchford Plaza; and a Distribution Piping System which carries district energy water from the Energy Centre to Stage 1 of the Blatchford land development.

Customer apartment buildings will contain an Energy Transfer Station that provides thermal energy from the District Energy Sharing System for the buildings. Blatchford buildings will use renewable district energy for heating and cooling and, as such, buildings will not need to be equipped with traditional systems related to the production of thermal energy, such as furnaces, boilers, chillers or fireplaces. Blatchford buildings will not require ancillaries such as boiler venting or cooling towers. The Blatchford Renewable Energy Utility will own, operate and maintain the central mechanical systems in the Energy Transfer Station, reducing the operational burden on the builder and homeowner.

Some buildings in Blatchford may be exempted from the requirement to connect to the District Energy Sharing System if they are designed, built and certified to a net zero carbon standard, or better. Within the first stage of development, no builders applied for the exemption opportunity, however one builder aims to be net-zero while still connecting to the District Energy Sharing System.

BLATCHFORD DEVELOPMENT

The development and operation of the utility is closely connected to the work of the Blatchford Redevelopment Office. As the land developer, the Blatchford Redevelopment Office is responsible for land use planning, engineering design, construction of public infrastructure, and selling fully serviced

parcels of land to builders. Close collaboration between the Blatchford Redevelopment Office and the Blatchford Renewable Energy Utility is crucial to ensure planning and construction activities are aligned along with monitoring and updating the financial performance of both entities. As with any large land development project, a staging plan exists. However, the sequence and timing of the stages are subject to change depending on market conditions. The current operational, energy and financial model for the utility is based on the most recent development scenario for Blatchford and will need to be adjusted as necessary and hand-in-hand with the business case for the land development.

Business Plan Priorities

Strategic Plan

The strategic objectives of the Blatchford Renewable Energy Utility focus on the growth of the District Energy Sharing System and the integration of emerging technologies, such as renewable natural gas and Solar PV, into the utility's operation. The overall goal is to reach steady reliable operation and financial sustainability while achieving Council's vision for a carbon neutral community powered entirely by renewable energy.

Growth of the utility infrastructure will be closely aligned with the pace of the land development and market uptake by the building community. The Blatchford Renewable Energy Utility will follow the Blatchford development schedule and will adjust accordingly as considerations change along the way. Overall a staged approach for the land development and utility is planned in Blatchford, which will also include periodic updates of the energy and financial model for the utility. Land development needs to be flexible to adjust to market demands and conditions. Recent announcements including the confirmation of funding for the Metro Line LRT extension into Blatchford and NAIT's purchase of a significant piece of land may impact the land development scenarios for the site. Any changes to the land development scenario would likely have an impact on the Blatchford Renewable Energy Utility's staging and infrastructure needs.

Following the current land development scenario, the overall potential locations and staging of future utility operated Energy Centers for the District Energy Sharing System is outlined in Figure 1. Each Energy Center will provide energy to defined stages of land development. The identified service area is outlined with potential commissioning of Energy Centres. At full build out, currently anticipated in the year 2047, the utility is expected to have more than 16,000 customers. Figure 1 identifies Energy Centers (EC) based on geothermal ground heat exchange technology, and the Sewer Heat Recovery Energy Centre (SHX) located in the Town Centre of Blatchford.

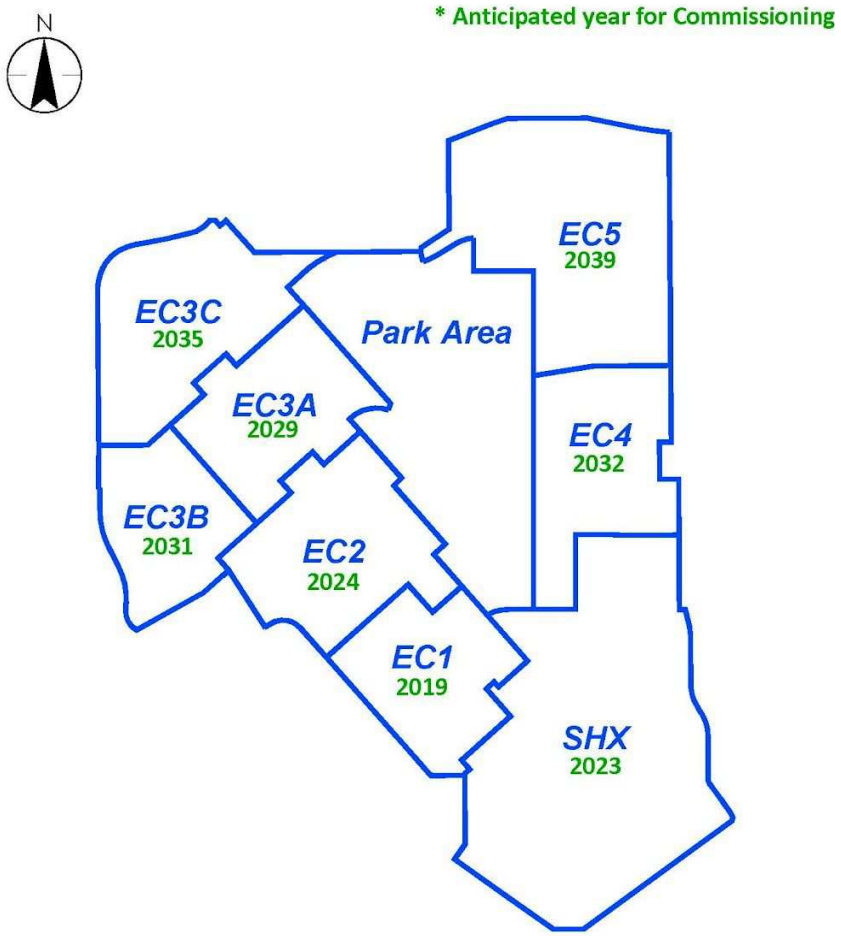

Figure 1: Map showing potential staging of Energy Centers for the full Blatchford Development (Years indicate potential commissioning date)

In its effort to continuously monitor emerging and alternative renewable energy technologies, in 2018 the utility investigated the prospect of providing renewable natural gas and Solar PV generation as an option to help achieve the development's sustainability goals.

Renewable natural gas, or biomethane, is a biogas that has been upgraded to a quality similar to fossil fuel natural gas with a methane content equal or greater than 90%. Since biogas is generated from waste that would release its carbon content naturally, it is considered to be 100% renewable and carbon neutral. While utilizing renewable natural gas is currently feasible, the cost to purchase renewable natural gas is considerable at this time and would have adverse effects on the utility's financial performance. The utility will continue to monitor the emerging renewable natural gas market in the province.

While the District Energy Sharing System provides heating, cooling and domestic hot water to residents and businesses in Blatchford, the main hurdle to fully achieve carbon neutrality by providing 100% renewable energy remains the provision of renewable electricity. The utility is currently exploring the potential for community generation, initially focussed on Solar PV installation, through the new provincial small-scale generation regulation. Discussions with the provincial government to further evaluate how this new regulation can be implemented in Blatchford are

ongoing. In addition, a funding application for a potential community-scale project in Blatchford has been prepared.

Achieving financial sustainability for the new utility depends on factors such as external capital injections, stable rate structure and other related utility fees. This relationship and importance will be outlined in more detail in a separate section in this Business Plan. The strategic vision from an operational perspective includes the partnership with an external utility service provider to operate and maintain the utility infrastructure, while the utility remains municipally owned. The utility is evaluating the timing and opportunities to engage an external partner, which will likely occur when the initial stage of operations has matured.

The Next Four-year Plan

During the next four years, the Blatchford Renewable Energy Utility's focus will remain on the construction and operation of the first stages of the District Energy Sharing System and further development of the operating and financial structure of the utility.

As shown in Figure 2, the first stage of the District Energy Sharing System construction consists of a ground heat exchanger borefield located under the future stormwater pond; Energy Centre # 1 located on the future Blatchford Plaza; and a Distribution Piping System which carries district energy water from the Energy Centre to Stage 1 of the Blatchford development.

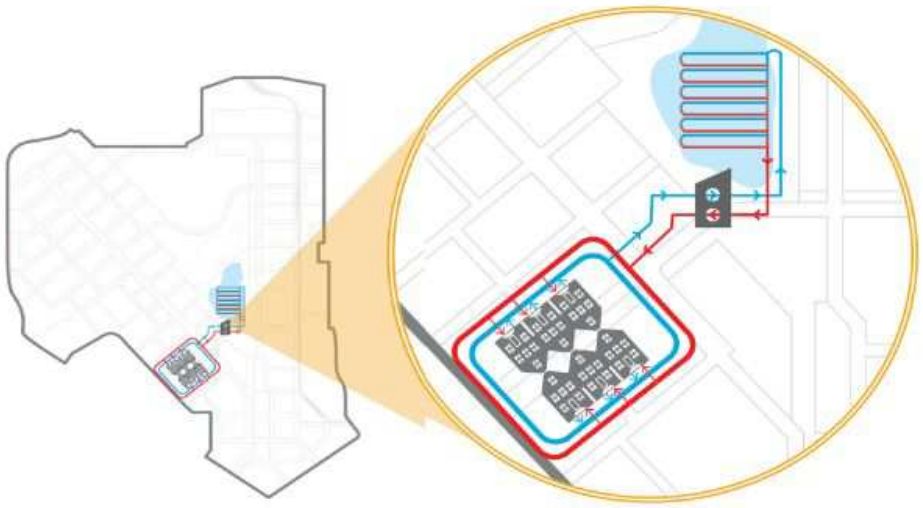

Figure 2: Map showing the Ground Heat Exchanger Borefield, Energy Centre #1 and the Distribution Piping System that will form part of the first stage of District Energy Sharing System

Construction of the first stage of the District Energy Sharing System started in April 2018 with construction completion and commissioning expected by the third quarter of 2019. Additional Energy Centre stages are planned in conjunction with the land development stages. The first stage of the District Energy Sharing System can supply energy for additional stages of residential and commercial development in Blatchford. Special attention has been given to the planning and development of the Sewer Heat Recovery Energy Centre in the Town Centre. Construction of the Sewer Heat Recovery Energy Centre is currently expected to begin in 2022 with commissioning anticipated in 2023. The

next Energy Centre #2, also based on geoexchange technology, will be dependent on the current overall development scenario for Blatchford, but is currently expected to be commissioned in 2024. The related planning, design and construction activities for these initiatives has been integrated in the next four year operating and capital budget cycle.

In 2018, the financial and operational governance structure of the new Blatchford Renewable Energy Utility was established. In April 2018, City Council approved the Fiscal Policy of the Blatchford Renewable Energy Utility. The policy provides the financial background required for the utility, and establishes the key parameters for its long term financial sustainability. The first four year Business Plan was adopted in June 2018, followed by the approval of the initial rates and the Utility Bylaw 17943 in December. Also in December, Council approved the first four year operating budget for the new Blatchford Renewable Energy Utility. This updated business plan will be followed by the updated rate setting study, the review of the existing Bylaw and the update to operating and capital budget for the utility later in 2019.

Operational Plan

Guided by the sales activities of the Blatchford land development team, the utility is expecting to connect to 10 fee-simple townhouse accounts by the end of 2019. The number of expected accounts will increase to 53 in 2020 and 122 in 2023, which represents supplying energy to approximately 1,400 customer units. This represents a slower pace of account development than initially anticipated, which was adjusted as is standard in the land development industry to align with current sales, market conditions and and builder plans.

Initial operation of the first stage of the District Energy Sharing System, with a relatively small number of connections and accounts, will be managed internally by the utility in partnership with other City of Edmonton Departments, external contractors and technical experts. A summary of individual operating units within the utility is presented below:

<u>Maintenance, Operation and Engineering:</u>

Initial operation and maintenance will be provided by the City's Facilities Maintenance Services (FMS) section within the City Operations Department. The utility is working hand-in-hand with FMS to establish operating protocols and maintenance procedures. The operation will start after commissioning, which is expected during the third quarter of 2019. The first building connections to the District Energy Sharing System are expected to come online later in 2019. Engineering support will be provided internally with support from external technical consultants and contractors.

Billing and Customer Service:

The utility is working on a service level agreement with EPCOR for billing and customer service support for the Blatchford Renewable Energy Utility. As EPCOR is overhauling their company-wide billing software, the services in 2019 and 2020 will be provided through manual service, with the expectation that the utility bills will be integrated with their new system in 2021. This manual service level is possible as the number of utility accounts in the initial years are low. EPCOR, in cooperation with the City's 311 services, will also be involved in customer service functions as it relates to billing, technical and emergency communication and planning.

Finance, Legal and Regulatory:

Financial, regulatory and legal support for the utility is provided by the Financial and Corporate Services Department and the Office of the City Manager with has significant expertise in utility management. Both departments were heavily involved during the development of the bylaw, the fiscal policy, rate filing and initial operating and capital budgets for the utility.

Marketing and Communication:

With the completion of the first stage of the District Energy Sharing System on the horizon and in preparation for the first builders to start construction, the utility is ramping up its marketing and communication efforts. A full-time temporary utility marketing resource will complement the existing Blatchford marketing team. The team will work to establish relationships with builders and customers, provide a web presence and fulfill other marketing and communication needs.

External Partnerships

While developing the first stage of operation, the utility will continue to evaluate potential external operators of the District Energy Sharing System for future engagement in the project.

Key Measures

Table 1 below provides an updated summary of the Blatchford Renewable Energy Utility's key performance measure and their alignment with Council's strategic goals for 2019 to 2028 :

Table 1: Key Performance Measures of the Blatchford Renewable Energy Utility

Utility Strategic Direction	Performance Measures	Forecasted Targets					Corporate Goals
		2019	2020	2021	2022	2023	
Goal: A Healthy Community Well Served							
Blatchford Renewable Energy Utility strives to provide a high level of customer satisfaction by delivering timely and uninterrupted thermal energy.	Thermal Energy Provided by DESS	154 MWh	845 MWh	4,710 MWh	8,184 MWh	11,368 MWh	CLIMATE RESILIENCE
	DESS Operational Uptime	100%	100%	100%	100%	100%	
Goal: Environmental Stewardship							
Blatchford Renewable Energy Utility is committed to staying true to the project vision by complying to the environmental regulations and abiding by ENVISO goals in order to protect the environment and biodiversity.	Compliance with environmental permits and regulations	100%	100%	100%	100%	100%	CLIMATE RESILIENCE
	Renewable Energy (Utility)[1]	86%	86%	100%	100%	100%	
	Renewable Energy (Community)[2]	42%	42%	50%	50%	56%	URBAN PLACES
	GHG reduction (Utility)[3]	10 tCO2e	54 tCO2e	416 tCO2e	769 tCO2e	1,093 tCO2e	
Goal: Operational Effectiveness							
Blatchford Renewable Energy Utility is committed to providing a culture of innovation and a strong sense of purpose through a commitment to people, and optimizing systems and resources.	Cumulative utility customers	10	53	489	959	1,409	URBAN PLACES

Utility Strategic Direction	Performance Measures	Forecasted Targets					Corporate Goals
		2019	2020	2021	2022	2023	
Goal: Fiscal Sustainability							
Blatchford Renewable Energy Utility strives to become financially sustainable and is committed to be fair and equitable.	Positive net income	no	no	no	no	no	REGIONAL PROSPERITY, URBAN PLACES
	Debt to net asset ratio[4]	0%	0%	0%	0%	0%	
	Positive Cash position	no	no	no	no	no	

1 Renewable Energy (Utility): Percent of renewable energy used for utility owned and operated equipment
2 Renewable Energy (Community): Percent of renewable energy for the whole community
3 GHG Reduction (Utility): Tonnes of carbon dioxide equivalent reduced from utility operation
4 Debt to net asset ratio: Utility is not anticipated to take on its own debt until 2026

Symbol	Corporate Goal	Description
CLIMATE RESILIENCE	Climate Resilience	Edmonton is a city transitioning to a low-carbon future, has clean air and water and is adapting to a changing climate.
REGIONAL PROSPERITY	Regional Prosperity	Edmonton grows prosperity for our Metro Region by driving innovation, competitiveness and relevance for our businesses at the local and global level.
URBAN PLACES	Urban Places	Edmonton neighbourhoods are more vibrant as density increases, where people and businesses thrive and where housing and mobility options are plentiful.

Risk Identification

Table 2 below identifies the operational risks associated with the design and construction of the District Energy Sharing System and the development of the Blatchford Renewable Energy Utility. The likelihood score is from 1-Rare to 5-Almost Certain. The Impact score is from 1-Minor to 5-Worst Case.

Table 2: Risk Matrix for the Blatchford Renewable Energy Utility

Risk Factor	Risk Description	Likelihood (1 to 5)	Impact (1 to 5)	Risk Score	Mitigation Strategy	Risk Owner
Financial	Substantial external investment is needed for the utility. Impact on rate structure and uptake in customers is critical for long term viability.	3 Possibly	3 Major	9 Medium	Communicate and lobby government for external funding, update financial model forecast frequently and engage with Council for any changes.	Utility Leadership
Economic	Direct utility impact on pace of development and uptake of land parcels by builders.	3 Possibly	3 Major	9 Medium	Ensure close collaboration and monitoring of land development and building industry.	Utility Leadership
Political Influences	Direction could impact the original vision and delivery of the project.	2 Unlikely	3 Major	6 Low	Communication to Council. Accelerate, slow down or adjust activities, depending on the situation.	Utility Leadership
Project Management	By following Blatchford vision of sustainability, technical and financial risks are encountered.	3 Possible	1 Minor	3 Low	Allow longer schedule for Planning and Engineering of sustainable design. Use Project Develop Deliver Model (PDDM).	Utility Leadership

Financial and Regulatory Impacts

This Business Plan adheres to the principles as established by the Blatchford District Energy Utility Fiscal Policy C597, shown in Appendix 1 of this plan. The Fiscal Policy establishes the framework for how the utility will set its rates, finance capital, and manage its cash position. The utility continues to work towards achieving the long term financial indicators as set out in the Fiscal Policy (i.e. Positive Net Income, Positive Cash Position, Debt Financing of Capital). Continued efforts will be made to minimize rate increases, identify operational efficiencies, and prioritize capital projects.

A summary of the three financial indicators, as established in the Fiscal Policy, as well as the projected timelines and key milestones for the Blatchford Renewable Energy Utility to achieve long term financial sustainability is provided in Appendix 2. Included in Appendix 2 is the requirement for a $93 million non-refundable cash infusion to pay for the initial stages of infrastructure development and to enable the following two key principles to be achieved:

- ensure that the Blatchford utility becomes financially sustainable in the long run without any ongoing subsidy; and
- ensure Blatchford utility customers pay, at most, a comparable fee to what they would elsewhere in the City through their energy utility bills and annual maintenance costs.

KEY FINANCIAL AND REGULATORY UPDATES

The 2019-2022 Business Plan identified the following regulatory and financial priorities in the first four years as the utility continues to develop and moves towards longer term financial sustainability:

1) Establish the regulatory framework and customer rates based upon a cost of service methodology that ensures the Blatchford Renewable Energy Utility customers pay a comparable energy fee to what they would elsewhere in the City of Edmonton through their energy utility bills and annual maintenance costs;
2) Obtain a non-refundable cash infusion in order to fund the initial stages of the utility infrastructure development;
3) Obtain short-term bridge financing to be used as working capital for the day-to-day operations of the utility as it continues to mature and begins to generate positive net income and a positive cash position as the number of residents and utility customers increase.

In December 2018, City Council approved both the Blatchford Utility 2019-2022 Budget and the 2019 Annual Rate FIling. The 2019 Annual Rate Filing establishes the regulatory framework and customer rates for the initial year of operation of the Blatchford utility. Customer rates in 2019 have been set at a comparable fee to elsewhere in the City of Edmonton and based on a cost of service methodology. Given the small number of utility customers in 2019, customer rates are lower than what is required for the Blatchford utility to recover its full revenue requirement, or full cost of providing the service. Therefore, a regulatory deferral account has been implemented beginning in 2019 to accumulate the differences between the revenue collected and the revenue requirement based on cost of service until such time as sufficient customers come on line to generate customer revenues that recover the revenue requirement to operate the utility.

The Blatchford utility 2019-2022 Budget approved in December 2018 included $1.431 million for the completion of Energy Centre #1 ($19.442 million in total) as well as a $9.0 million short term

borrowing from the City of Edmonton in 2019 in order to provide working capital to fund the day to day operations and debt servicing costs of the utility in the initial stages of development from 2019 to 2022. In June 2019, as part of the Supplemental Capital Budget Adjustment presented to City Council, Administration requested approval for an additional $4.972 million of capital for the preliminary planning and schematic design of the next stage of development of the Blatchford utility.

At the March 22, 2019 Utility Committee meeting, an update was provided by Administration on the strategy and financial options for addressing the non-refundable cash infusion required to fund the initial stages of infrastructure development for the Blatchford utility. This update included the current status of the Expression of Interest submitted by the City of Edmonton under the Green Infrastructure Fund as well as the one-time additional Gas Tax Funding included in the 2019-20 Federal budget. In response to a motion at the March 22, 2019 meeting, Administration will be providing a further sensitivity analysis to the Utility Committee in the fall of 2019 of the financial impact on the utility depending on the variability of gas and electricity commodity prices, the pace of development of the Blatchford land development and build out of the Blatchford utility, and other potential key variables.

BLATCHFORD UTILITY 2019-2022 BUDGET (values $000)

The following Tables 3 and 4 summarize the Approved 2019-2022 Capital and Operating Budgets for the Blatchford Renewable Energy Utility, incorporating the requested approval for an additional $4.972 million of capital expenditures as part of the June 2019 Supplemental Capital Budget Adjustment. These capital, revenue and expenditure amounts will be updated in the fall of 2019 when the 2020 annual rate filing and any associated supplemental capital and operating budget adjustments are brought forward for Council approval.

Table 3: 2019-2022 Capital Budget for the Blatchford Renewable Energy Utility ($000) (Adjusted for Proposed $4.972 Million of Capital in the June 2019 SCBA)

Prior Years	2019 Approved	2020 Proposed	2021 Proposed	2022 Proposed	2019-2022 Total
$17,900	$1,924	$2,821	$1,658	$0	$6,403

Table 4: 2019-2022 Operating Budget for the Blatchford Renewable Energy Utility

	2019 Approved	2020 Approved	2021 Approved	2022 Approved
Revenues and Fees				
Rate Revenue	$77	$161	$206	$325
Infrastructure Fees	$459	$0	$239	$422
Total Revenues	**$536**	**$161**	**$445**	**$747**
Expenditures and Transfers				
Personnel	$276	$281	$287	$293
Material, Goods and Supplies	$188	$304	$414	$451
External Services	$776	$788	$470	$501
Interest	$660	$748	$866	$946
Shared Services	$72	$74	$75	$77
Utilities and Other Charges	$301	$42	$50	$681
Amortization	$113	$453	$472	$486
Total Expenditures and Transfers	**$2,115**	**$2,690**	**$2,634**	**$2,8221**
Net Operating Requirement	**($1,579)**	**($2,529)**	**($2,189)**	**($2,075)**
Full Time Equivalents	**3.0**	**3.0**	**3.0**	**3.0**

Conclusion

The next Business Plan iteration for the new Blatchford Renewable Utility provides an updated overview of the strategic development of the new utility, with a focus on the initial four years of its operation. Several key milestones have been achieved from the utility to prepare for its operation and the first utility customers coming online later in 2019. The strategic objectives of the utility are the growth of the District Energy Sharing System and the integration of emerging technologies into the utility's operation to reach steady reliable operation, financial sustainability, and achieve Council's vision for a carbon neutral community powered entirely by renewable energy. The growth of the new utility is, and will continue to be, closely connected to the land development activities in Blatchford.

Following this business plan update, Administration will prepare the annual rate filing and budget submissions for Council's consideration during the fourth quarter of 2019.

Blatchford Renewable Energy Utility
2020 Rate Filing
Index of MFR Schedules

Blatchford Renewable Energy Utility
2020 Rate Filing
Summary of Total System Revenue Requirement
($000s)

Line No.	Description	Cross Reference	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
	Revenue Requirement						
1	Operating Costs	S. 5-1	1,342.43	750.95	1,255.77	1,468.81	1,453.47
2							
3	Depreciation		-	-	-	-	-
4							
5	Revenue Offsets		-	-	-	-	-
6							
7	Return on Rate Base		-	-	-	-	-
8							
9	**Total System Revenue Requirement**		**1,342.43**	**750.95**	**1,255.77**	**1,468.81**	**1,453.47**
10							
11							
12	**Revenue**						
13	Revenue on Proposed Rates		$ 77.21	$ 1.28	$ 24.05	$ 169.22	$ 447.24
14							
15	Infrastructure Fee		$ 458.50	$ 17.50	$ 75.25	$ 776.48	$ 855.73
16							
17	**Total Revenue**		**$ 535.71**	**$ 18.78**	**$ 99.30**	**$ 945.70**	**$ 1,302.97**
18							
19	**Revenue Surplus/(shortfall)**		(806.73)	(732.17)	(1,156.47)	(523.11)	(150.50)

Blatchford Renewable Energy Utility
2020 Rate Filing
Summary of Operating Costs
($000s)

Line No.	Description	Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
1	Utilities & Other	S.6-1	$ -	$ 24.18	$ 10.00	$ 38.01	$ 45.68	$ 64.49
2								
3	Operations and Maintenance Costs	S. 7-1	-	700.09	598.01	850.24	1,040.07	1,088.34
4								
5	Administration Costs	S. 8-1	-	369.86	85.92	283.02	288.67	167.80
6								
7	Customer Billing Services Costs	S. 9-1	-	175.88	14.79	22.15	21.68	58.67
8								
9	Corporate Administration Costs	S. 10-1	-	72.42	42.22	62.36	72.71	74.16
10								
11	Franchise Fees and Property Taxes		-	-	-	-	-	-
12								
13	**Total Operating Costs**		**$ -**	**$ 1,342.43**	**$ 750.95**	**$ 1,255.77**	**$ 1,468.81**	**$ 1,453.47**

Blatchford Renewable Energy Utility
2020 Rate Filing
Utilities & Other Costs
($000s)

Line No.	Description	Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast	Cross Reference
1	Utilities		$ -	$ 24.18	$ 10.00	$ 38.01	$ 45.68	$ 64.49	
2									
3	Other		-	-	-	-	-	-	
4									
5	**Total Utilities**		**$ -**	**$ 24.18**	**$ 10.00**	**$ 38.01**	**$ 45.68**	**$ 64.49**	S. 5-1

Blatchford Renewable Energy Utility
2020 Rate Filing
Operations and Maintenance Costs by Function
($000s)

Line No.			Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast	Cross Reference
1	**Energy Centers & Main Distribution System**									
2	Operation & Maintenance			$ -	155.21	-	197.82	350.13	360.84	
3				-	-		-	-	-	
4		Subtotal		-	155.21		197.82	350.13	360.84	
5										
6	**Customer Connection and Meters**									
7	Operation & Maintenance			-	13.92	-	18.52	43.37	69.90	
8				-	-		-	-	-	
9		Subtotal		-	13.92	-	18.52	43.37	69.90	
10										
11	**Quality Assurance**			-	-		-	-	-	
12										
13	**Operations Support Services**									
14	Personnel			-	275.89	337.07	337.52	344.27	351.15	
15	Travel & Training			-	5.75	1.45	6.89	7.03	5.27	
16	Tools, Equipment & Vehicles				19.31	2.34	25.56	26.08	26.60	
17	Technical Consultants			-	230.00	257.15	263.93	269.20	274.59	
18	Less: Recovery of Costs			-	-		-	-	-	
19		Subtotal		-	530.95	598.01	633.89	646.57	657.60	
20										
21	**Total Operations and Maintenance Costs**			**$ -**	**$ 700.09**	**$ 598.01**	**$ 850.24**	**$ 1,040.07**	**$ 1,088.34**	S. 5-1

Blatchford Renewable Energy Utility
2020 Rate Filing
Administration Costs by Function
($000s)

Line No.	Description	Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast	Cross Reference
1	Marketing, Education and Communication		$ -	$ 297.99	$ 77.89	$ 239.03	$ 243.81	$ 122.04	
2	Consultants		-	71.88	8.03	43.99	44.87	45.76	
3			-	-		-	-	-	
4	Subtotal		-	369.86	85.92	283.02	288.67	167.80	
5									
6	Less:								
7	Allocations to Other Business Units		-	-		-	-	-	
8	Capital Overhead Recoveries		-	-		-	-	-	
9			-	-		-	-	-	
10									
11	**Total Administration Costs**		**$ -**	**$ 369.86**	**$ 85.92**	**$ 283.02**	**$ 288.67**	**$ 167.80**	S. 5-1

Blatchford Renewable Energy Utility
2020 Rate Filing
Customer Billing Costs
($000s)

Line No.	Description	Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast	Cross Reference
1	Monthly Billing Charges		$ -	$ 23.50	$ 0.84	$ 22.15	$ 21.68	$ 58.67	
2	One-time Set-up Charges			$ 152.38	$ 13.95	$ -	$ -	$ -	
3	Bad Debts		-	-		-	-	-	
4	Write-offs and Adjustments		-	-		-	-	-	
5									
6	**Total Customer Billing Costs**		**$ -**	**$ 175.88**	**$ 14.79**	**$ 22.15**	**$ 21.68**	**$ 58.67**	S. 5-1

Blatchford Renewable Energy Utility
2020 Rate Filing
Corporate Administration Costs
($000s)

Line No.	Description	Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast	Cross Reference
1	Shared Corporate Service Costs		$ -	$ 64.37	$ 42.16	$ 49.25	$ 50.23	$ 51.24	
2	Asset Usage Fees		-	8.05	-	7.50	16.74	17.08	
3	Other - Transportation and Insurance			-	0.06	5.62	5.73	5.85	
4	Subtotal		-	72.42	42.22	62.36	72.71	74.16	
5									
6	Less: Allocation to Other Business Units								
7	Shared Corporate Service Costs		-	-		-	-	-	
8	Asset Usage Fees		-	-		-	-	-	
9	Subtotal		-	-	-	-	-	-	
10									
11	**Total Corporate Administration Costs**		**$ -**	**$ 72.42**	**$ 42.22**	**$ 62.36**	**$ 72.71**	**$ 74.16**	S. 5-1

Blatchford Renewable Energy Utility
2020 Rate Filing
Rate Base
($000s)

Line No.	Description	Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast	Cross Reference
1	Prior Year Property, Plant and Equipment	S. 15-2	$ -	$ -	$ -	$ 18,278.00	$ 19,442.00	$ 19,442.00	
2	Prior Year Accumulated Depreciation		-	-	-	-	-	-	
3	Prior Year Net Property		-	-	-	18,278.00	19,442.00	19,442.00	
4									
5	Current Year Property, Plant and Equipment	S. 15-2	-	18,278.00	18,278.00	19,442.00	19,442.00	19,442.00	
6	Current Year Accumulated Depreciation		-	-	-	-	-	-	
7	Current Year Net Property		-	18,278.00	18,278.00	19,442.00	19,442.00	19,442.00	
8									
9	Mid-Year Net Property		-	9,139.00	9,139.00	18,860.00	19,442.00	19,442.00	
10									
11	Materials and Supplies		-	-	-	-	-	-	
12									
13	Working Capital		-	-	-	-	-	-	
14									
15	Gross Mid-Year Rate Base		-	9,139.00	9,139.00	18,860.00	19,442.00	19,442.00	
16									
17	Mid-Year Net Contributions	S. 15-6	-	(9,139.00)	(9,139.00)	(18,860.00)	(19,442.00)	(19,442.00)	
18									
19	**Net Mid-Year Rate Base**		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	

Blatchford Renewable Energy Utility
2020 Rate Filing
Property, Plant & Equipment
($000s)

Line No.		Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
1	Previous year balance		$ -	$ -	$ -	$ 18,278.00	$ 19,442.00	$ 19,442.00
2								
3	Additions to Property, Plant & Equipment							
4	BREU Funded	S. 15-4	-	18,278.00	18,278.00	1,164.00	-	-
5	Developer Additions		-	-		-	-	-
6			-	18,278.00	18,278.00	1,164.00	-	-
7								
8	Retirements and Adjustments		-	-		-	-	-
9								
10	**Current year balance**		**$ -**	**$ 18,278.00**	**$ 18,278.00**	**$ 19,442.00**	**$ 19,442.00**	**$ 19,442.00**

Blatchford Renewable Energy Utility
2020 Rate Filing
Construction Work in Progress
($000s)

Line No.		Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast	Cross Reference
1	Previous year balance		$ -	$ 18,011.00	$ 12,699.22	$ 1,657.19	$ 3,314.39	$ 4,971.58	
2									
3	Capital Expenditures		12,699.22	1,924.19	7,235.97	2,821.19	1,657.19	22,598.10	
4									
5	Less: Capital Additions		-	(18,278.00)	(18,278.00)	(1,164.00)	-	-	S. 15-2
6									
7	**Current year balance**		$ 12,699.22	$ 1,657.19	$ 1,657.19	$ 3,314.39	$ 4,971.58	$ 27,569.69	

Blatchford Renewable Energy Utility
2020 Rate Filing
Contributions in Aid of Construction
($000s)

Line No.	Description	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast	Cross Reference
1	Prior Year Gross Contributions	$ -	$ -		$ (18,278.00)	$ (19,442.00)	$ (19,442.00)	
2								
3	City Contributions	-	(18,278.00)	(18,278.00)	(1,164.00)	-	-	
4	Customer Contributions	-	-		-	-	-	
5	Developer Contributions	-	-		-	-	-	
6	Retirements, Transfers & Disposals							
7								
8	**Current Year Gross Contributions**	-	(18,278.00)	(18,278.00)	(19,442.00)	(19,442.00)	(19,442.00)	
9								
10	Prior Year Accumulated Amortization	-	-	-	-	-	-	
11								
12	Gross Amortization	-	-	-	-	-	-	
13	Retirements, Transfers & Disposals							
14								
15	**Current Year Accumulated Amortization**	-	-	-	-	-	-	
16								
17								
18	**Mid Year Net Contributions**	**$ -**	**$ (9,139.00)**	**$ (9,139.00)**	**$ (18,860.00)**	**$ (19,442.00)**	**$ (19,442.00)**	S. 15-1

Blatchford Renewable Energy Utility
2020 Rate Filing
Customers and Consumption
($000s)

Line No.	Description	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast	Cross Reference
1	**TOTAL CUSTOMERS - AVERAGE**							
2	Townhomes	-	30	5	31	79	105	
3	Apartments	-	101	-	-	191	617	
4	Other	-	-	-	1	1	1	
5								
6	**Total Customers - Average**	**-**	**131**	**5**	**32**	**271**	**723**	
7								
8	**TOTAL CONSUMPTION (MWh)**							
9								
10	Townhomes	-	203	25	273	523	700	
11	Apartments	-	596	-	-	1,085	3,504	
12	Other	-	-	-	3	7	7	
13	Subtotal	-	798	25	277	1,615	4,210	
14		-	-		-	-	-	
15								
16	**Total Consumption (kWh)**	**-**	**798**	**25**	**277**	**1,615**	**4,210**	
17								
18	**Average Monthly Consumption per Customer** (kWh per month)							
19	Townhomes	-	562.5	416.7	734.8	555.6	555.6	
20	Apartments	-	491.3	-	-	473.2	473.2	
21	Other	-	-	-	555.6	555.6	555.6	

Blatchford Renewable Energy Utility
2020 Rate Filing
Revenue on Proposed Rates
($000s)

Line No.	Description	Cross Reference	2018 Actual	2019 Approved Budget	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
1	**Total Revenue on Proposed Rates**							
2	Townhomes		$ -	$ 125.81	$ 18.78	$ 97.20	$ 151.69	$ 78.25
3	Apartments		-	409.90	-	-	793.29	1,223.97
4	Other		-	-		2.11	0.73	0.75
5	**Total Revenue on Proposed Rates**		**$ -**	**$ 535.71**	**$ 18.78**	**$ 99.30**	**$ 945.70**	**$ 1,302.97**
6								
7	**Rate Revenue on Proposed Rates**							
8	Townhomes			20.81	1.28	23.70	57.08	78.25
9	Apartments			56.40	-	-	111.42	368.24
10	Other			-	-	0.36	0.73	0.75
11	**Rate Revenue on Proposed Rates**		**$ -**	**$ 77.21**	**$ 1.28**	**$ 24.05**	**$ 169.22**	**$ 447.24**
12								
13	**Infrastructure Fee**							
14	Townhomes			105.00	17.50	73.50	94.61	-
15	Apartments			353.50	-	-	681.87	855.73
16	Other			-	-	1.75	-	-
17	**Total Infrastructure Fee**		**$ -**	**$ 458.50**	**$ 17.50**	**$ 75.25**	**$ 776.48**	**$ 855.73**

Blatchford Renewable Energy Utility
2020 Rate Filing
Proposed End Use Customer Rates and Fees

Line No.	Description	2019 Approved	2020 Proposed	2021 Current Forecast	2022 Current Forecast
1	**Fixed Charge ($/day)**				
2	Townhomes	$1.43	**$1.47**	$1.51	$1.55
3	Apartments	$1.12	**$1.15**	$1.18	$1.21
4					
5					
6	**Variable Charge ($/kWh)**				
7	Townhomes & Apartments	$0.0248	**$0.0255**	$0.0262	$0.0269
8					
9					
10					
11	**Infrastructure Fee ($/connection)**				
12	Residential - Townhomes & Apartments	$ 1,750	**$1,750**	$1,785	$1,821
13	Commercial	$ 20.00	**$20.00**	$20.40	$20.81

Note: Approval is being sought for End Use Customer Rates and Fees for 2020 only.

Blatchford Renewable Energy Utility
2020 Rate Filing
Interest on Financing
($000s)

Line No.	Description	Cross Reference	2019 Current Forecast	2020 Proposed Rate Filing	2021 Current Forecast	2022 Current Forecast
1	**Deferral Account Opening Balance**		-	(741.32)	(1,934.08)	(2,523.06)
2						
3	Current Year Surplus/shortfall	S. 3-1'	(732.17)	(1,156.47)	(523.11)	(150.50)
4						
5	**Deferral Account Closing Balance**		(732.17)	(1,897.79)	(2,457.19)	(2,673.55)
6						
7	Interest Costs		(9.15)	(36.29)	(65.87)	(84.44)
8						
9	**Deferral Account Closing Balance Including Interest Costs**		**(741.32)**	**(1,934.08)**	**(2,523.06)**	**(2,758.00)**
10						
11	Interest Rate on Financing		2.50%	2.75%	3.00%	3.25%

Blatchford Renewable Energy Utility
2020 Rate Schedules
For Thermal Energy Service
Effective January 1 2020 to December 31 2020

Blatchford Renewable Energy Utility (BREU)
Rate BREU 1 - Residential Service

For Thermal Energy Service for all customers throughout the Service Area served by the Blatchford Renewable Energy Utility.

Rate

Rate Component		2020 Rate
Fixed Charge ($/day)		
	Townhomes	1.47
	Apartments	1.15
Variable Charge ($/kWh)		0.0255

The minimum charge is the Fixed Charge.

Application

Price Adjustments

Rate BREU 1 may be adjusted by applicable riders or rate adjustments, from time to time, as approved by Edmonton City Council.

Bylaw 17943 shall apply to customers taking service under Rate BREU 1.